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(FILE 'HOME' ENTERED AT 16:35:47 ON 31 JAN 2002)

FILE 'HCAPLUS' ENTERED AT 16:35:57 ON 31 JAN 2002

L1           E STEEGHS/AU  
          13 S E16-18  
          E VAN DER LEY/AU  
L2           57 S E8-14  
L3           57 S L1-2  
L4           6 S L3 AND GRAM-NEGATIVE  
          SELECT RN L4 1-6

FILE 'REGISTRY' ENTERED AT 16:38:43 ON 31 JAN 2002

L5           99 S E1-99  
L6           11 S L5 AND P/ELS  
L7           4 S L6 AND OC5/ES

FILE 'HCAPLUS' ENTERED AT 16:39:53 ON 31 JAN 2002

L8           5 S L5 AND L4  
L9           1 S L4 NOT L8

*5 citations with 99 compounds displayed  
1 citation, no compounds displayed*

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L8 ANSWER 1 OF 5 HCAPLUS /COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2001:714007 HCAPLUS

DOCUMENT NUMBER: 136:2617

TITLE: Modification of lipid A biosynthesis in *Neisseria meningitidis* lpxL mutants: influence on lipopolysaccharide structure, toxicity, and adjuvant activityAUTHOR(S): **Van der Ley, Peter; Steeghs, Liana**  
; Hamstra, Hendrik Jan; ten Hove, Jan; Zomer, Bert;  
Van Alphen, Loek

CORPORATE SOURCE: Laboratories of Vaccine Research, National Institute of Public Health and the Environment, RIVM, Bilthoven, 3720 BA, Neth.

SOURCE: Infection and Immunity (2001), 69(10), 5981-5990  
CODEN: INFIBR; ISSN: 0019-9567

PUBLISHER: American Society for Microbiology

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Two genes homologous to lpxL and lpxM from *Escherichia coli* and other **gram-neg.** bacteria, which are involved in lipid A acyloxyacylation, were identified in *N. meningitidis* strain H44/76 and insertionally inactivated. Anal. by tandem mass spectrometry showed that one of the resulting mutants, termed lpxL1, makes lipopolysaccharide (LPS) with penta- instead of hexa-acylated lipid A, in which the secondary lauroyl chain is specifically missing from the nonreducing end of the GlcN disaccharide. Insertional inactivation of the other (lpxL2) gene was not possible in wild-type strain H44/76 expressing full-length immunotype L3 lipopolysaccharide (LPS) but could be readily achieved in a gale mutant expressing a truncated oligosaccharide chain. Structural anal. of lpxL2 mutant lipid A showed a major tetra-acylated species lacking both secondary lauroyl chains and a minor penta-acylated species. The lpxL1 mutant LPS has retained adjuvant activity similar to wild-type meningococcal LPS when used for immunization of mice in combination with LPS-deficient outer membrane complexes from *N. meningitidis* but has reduced toxicity as measured in a tumor necrosis factor alpha induction assay with whole bacteria. In contrast, both adjuvant activity and toxicity of the lpxL2 mutant LPS are strongly reduced. As the combination of reduced toxicity and retained adjuvant activity has not been reported before for either lpxL or lpxM mutants from other bacterial species, these results demonstrate that modification of meningococcal lipid A biosynthesis can lead to novel LPS species more suitable for inclusion in human vaccines.

IT 376588-49-7

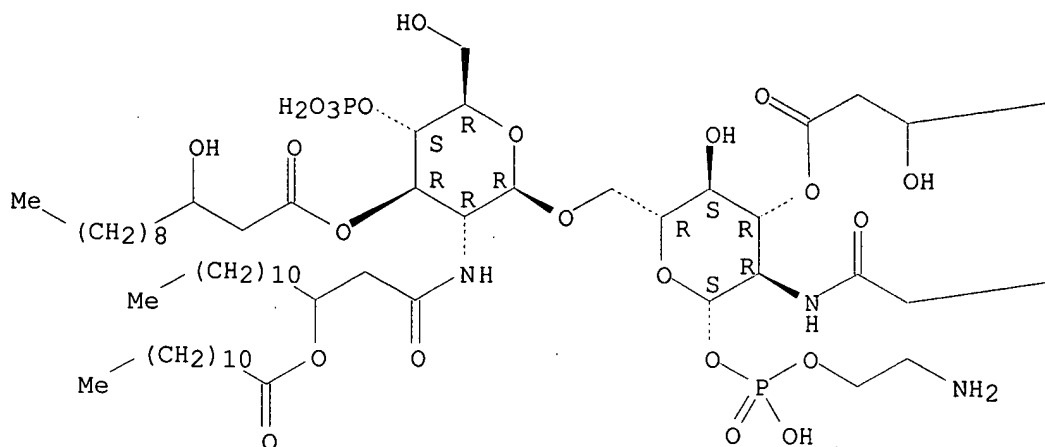
RL: PRP (Properties)  
(mass spectrum of)

RN 376588-49-7 HCAPLUS

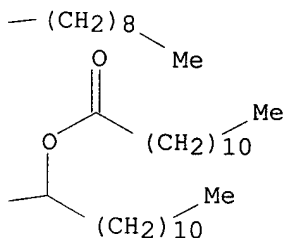
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Absolute stereochemistry.

PAGE 1-A



PAGE 1-B



IT 267895-09-0 376588-47-5

RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)

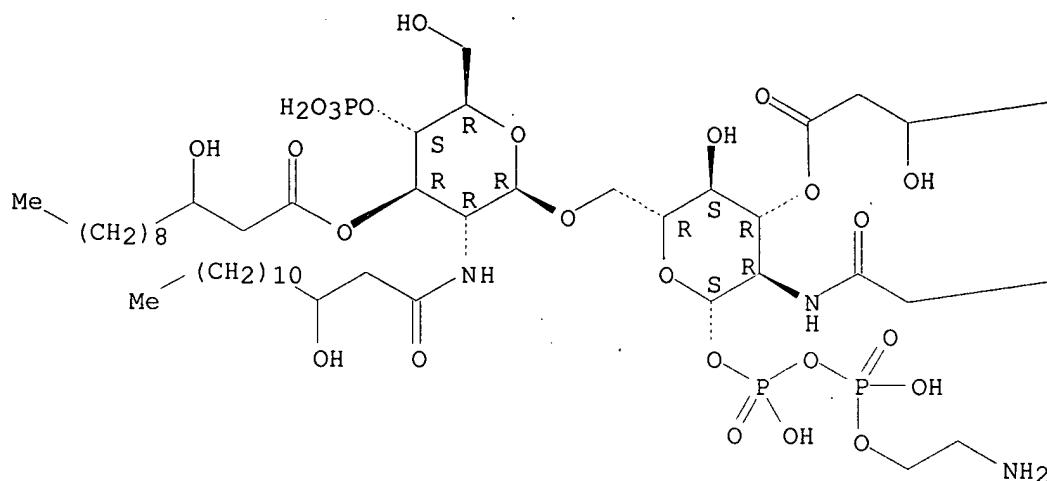
(modification of lipid A biosynthesis in *Neisseria meningitidis* lpxL mutants: influence on lipopolysaccharide structure, toxicity, and adjuvant activity)

RN 267895-09-0 HCAPLUS

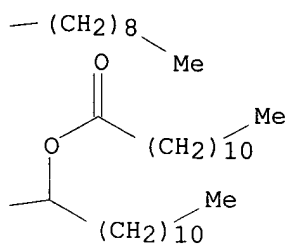
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Absolute stereochemistry.

PAGE 1-A



PAGE 1-B

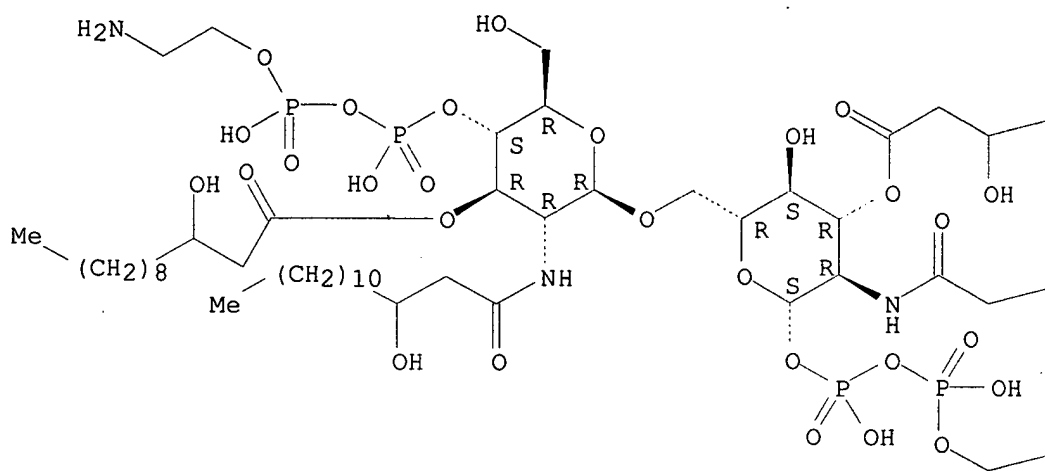


RN 376588-47-5 HCAPLUS

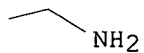
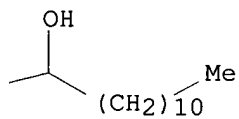
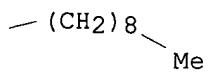
CN .beta.-D-Glucopyranose, 6-O-[4-O-(6-amino-1,3-dihydroxy-1,3-dioxido-2,4-dioxo-1,3-diphosphahex-1-yl)-2-deoxy-3-O-(3-hydroxy-1-oxododecyl)-2-[(3-hydroxy-1-oxotetradecyl)amino]-.beta.-D-glucopyranosyl]-2-deoxy-2-[(3-hydroxy-1-oxotetradecyl)amino]-, 1-[P'-(2-aminoethyl) P,P'-dihydrogen diphosphate] 3-(3-hydroxydodecanoate) (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B



REFERENCE COUNT:

39

THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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L8 ANSWER 1 OF 5 HCAPLUS COPYRIGHT 2002 ACS  
 CC 10-1 (Microbial, Algal, and Fungal Biochemistry)  
 ST Neisseria lipid A mutation toxicity adjuvant  
 IT Immunostimulants  
     (adjuvants; modification of lipid A biosynthesis in Neisseria meningitidis lpxL mutants: influence on lipopolysaccharide structure, toxicity, and adjuvant activity)  
 IT Toxins  
     RL: ADV (Adverse effect, including toxicity); BCP (Biochemical process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)  
     (enterotoxins; modification of lipid A biosynthesis in Neisseria meningitidis lpxL mutants: influence on lipopolysaccharide structure, toxicity, and adjuvant activity)  
 IT Gene, microbial  
     RL: BCP (Biochemical process); BIOL (Biological study); PROC (Process)  
     (lpxL; modification of lipid A biosynthesis in Neisseria meningitidis lpxL mutants: influence on lipopolysaccharide structure, toxicity, and adjuvant activity)  
 IT Neisseria meningitidis  
     (modification of lipid A biosynthesis in Neisseria meningitidis lpxL mutants: influence on lipopolysaccharide structure, toxicity, and adjuvant activity)  
 IT Lipid A  
     RL: ADV (Adverse effect, including toxicity); BCP (Biochemical process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)  
     (modification of lipid A biosynthesis in Neisseria meningitidis lpxL mutants: influence on lipopolysaccharide structure, toxicity, and adjuvant activity)  
 IT 376588-49-7  
     RL: PRP (Properties)  
     (mass spectrum of)  
 IT 267895-09-0 376588-47-5  
     RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)  
     (modification of lipid A biosynthesis in Neisseria meningitidis lpxL mutants: influence on lipopolysaccharide structure, toxicity, and adjuvant activity)

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L8 ANSWER 2 OF 5 HCAPLUS COPYRIGHT 2002 ACS  
 ACCESSION NUMBER: 2000:314848 HCAPLUS  
 DOCUMENT NUMBER: 132:346615  
 TITLE: Recombinant **Gram-negative**  
 bacteria-produced lipopolysaccharides with reduced  
 toxicity for use as vaccine adjuvants  
 INVENTOR(S): **Van der Ley, Peter Andre**; Hamstra, Hendrik  
 Jan; **Steeeghs, Liana Juliana Josephine Margriet**  
 PATENT ASSIGNEE(S): De Staat Der Nederlanden, Vertegenwoordigd Door De  
 Minister Van Welzijn, Vol, Neth.  
 SOURCE: PCT Int. Appl., 40 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000026384	A1	20000511	WO 1998-NL633	19981103
W:	AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
AU 9911782	A1	20000522	AU 1999-11782	19981103
EP 1127137	A1	20010829	EP 1998-954832	19981103
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, PT, IE, FI			
PRIORITY APPLN. INFO.:			WO 1998-NL633	A 19981103
AB	<p>Recombinant lipopolysaccharides (LPS) with reduced toxicity yet retaining antigenicity that can be used as adjuvants are provided. Recombinant LPS having a reduced no. of secondary acyl chains per mol. of LPS vis-a-vis the corresponding non-modified LPS mol., said secondary acyl chains being bound to primary acyl chains, said primary acyl chains being bound to the glucosamine of said recombinant LPS mol., said recombinant LPS being homogeneous in acylation pattern, is specifically provided. Also recombinant LPS having a phosphate group attached to the glucosamine at the non-reducing end of the LPS mol. and a phosphate group attached to the glucosamine at the reducing end of the mol. per recombinant LPS mol. provides a further example. The recombinant LPS may further contain a phosphoethanolamine group. These recombinant LPS are derived from the LPS of <b>Gram neg.</b> bacteria of genus <i>Neisseria</i>, <i>Bordetella</i>, <i>Salmonella</i>, or <i>Haemophilus</i>, preferably <i>Neisseria meningitidis</i>. Also claimed is a method of producing such recombinant LPS via culturing a <b>Gram neg.</b> bacterium harboring a mutation in a gene coding for an enzyme assocd. with secondary acyl, preferably lauroyl, addn. to primary acyl chain at the reducing end of the LPS, preferably at the 2' position of the glucosamine. The gene is preferably the <i>htrB1</i> gene. A vaccine for stimulating immune response against a <b>Gram neg.</b> bacterium contg. the recombinant LPS as adjuvant and an antigen is also claimed. LPS from <i>Neisseria meningitidis</i> with mutation in <i>htrB1</i> gene contained alterations in lipid A, notably a partial loss of the secondary C12:0 acyl chains and alteration in the phosphorylation pattern at the reducing end. The <i>htrB1</i> mutant LPS had a significantly reduced</p>			

toxicity while retaining adjuvant activity.

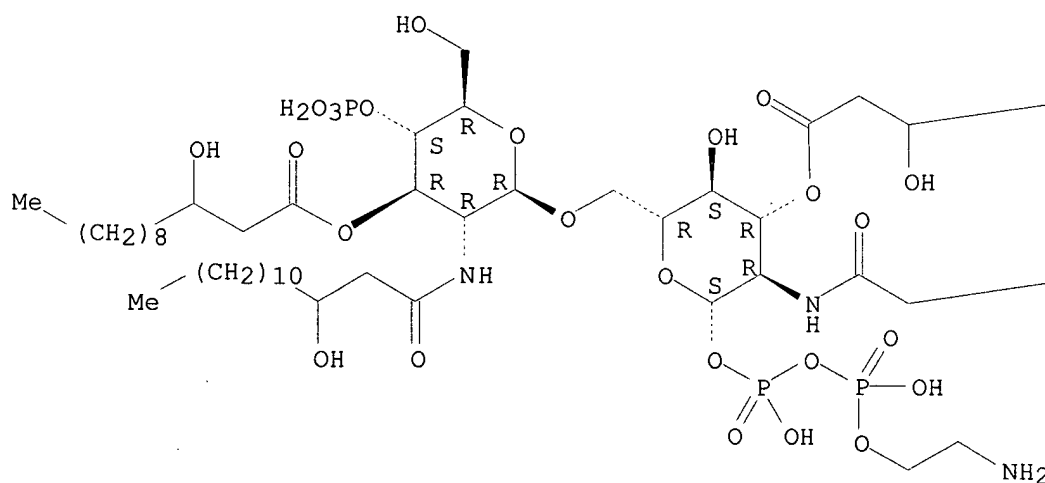
IT **267895-09-0P**  
 RL: BAC (Biological activity or effector, except adverse); BPN (Biosynthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (recombinant **Gram-neg.** bacteria-produced lipopolysaccharides with reduced toxicity for use as vaccine adjuvants)

RN 267895-09-0 HCAPLUS

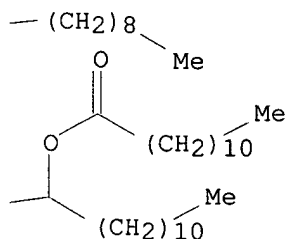
CN .beta.-D-Glucopyranose, 2-deoxy-6-O-[2-deoxy-3-O-(3-hydroxy-1-oxododecyl)-2-[(3-hydroxy-1-oxotetradecyl)amino]-4-O-phosphono-.beta.-D-glucopyranosyl]-2-[[1-oxo-3-[(1-oxododecyl)oxy]tetradecyl]amino]-, 1-[P'-(2-aminoethyl) dihydrogen diphosphate] 3-(3-hydroxydodecanoate) (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B



IT **268722-19-6, 1:** PN: WO0026384 FIGURE: 2 unclaimed DNA  
 RL: PRP (Properties)  
 (unclaimed nucleotide sequence; recombinant **Gram-neg.** bacteria-produced lipopolysaccharides with reduced toxicity for use as vaccine adjuvants)



RN 268722-19-6 HCAPLUS  
CN 1: PN: W00026384 FIGURE: 2 unclaimed DNA (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT 268722-20-9 268722-21-0

RL: PRP (Properties)

(unclaimed protein sequence; recombinant **Gram-neg.**  
bacteria-produced lipopolysaccharides with reduced toxicity for use as  
vaccine adjuvants)

RN 268722-20-9 HCAPLUS

CN 2: PN: W00026384 FIGURE: 2 unclaimed protein (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 268722-21-0 HCAPLUS

CN 3: PN: W00026384 FIGURE: 2 unclaimed protein (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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L8 ANSWER 3 OF 5 'HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1999:166730 HCAPLUS

DOCUMENT NUMBER: 130:207230

TITLE: Viable Lipid A-deficient mutants of **Gram negative** mucosal bacteria and their use in the development of vaccines

INVENTOR(S): Van Der Ley, Peter Andre; Steeghs, Liana Juliana Josephine Margret

PATENT ASSIGNEE(S): De Staat Der Nederlanden, Vertegenwoordigd Door De Minister Van Welzijn, Vol, Neth.

SOURCE: PCT Int. Appl., 29 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9910497	A1	19990304	WO 1997-NL474	19970821
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
AU 9739540	A1	19990316	AU 1997-39540	19970821
EP 991761	A1	20000412	EP 1997-936881	19970821
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, PT, IE, FI				
JP 2001514001	T2	20010911	JP 2000-507805	19970821
NO 2000000774	A	20000414	NO 2000-774	20000217
PRIORITY APPLN. INFO.: WO 1997-NL474 A 19970821				

AB It is possible to inactivate the early stage of lipid A synthesis of mucosal **gram neg.** bacteria without compromising cell viability. In particular the lpxA mutants of Neisseria meningitidis were found to be completely lipopolysaccharide(LPS)-deficient. The major outer membrane proteins (OMPs) were detected in normal amts. The finding provides important implications for understanding of structure and biogenesis of the outer membrane. On a practical level, the availability of LPS-deficient mutants of pathogenic mucosal bacteria such as N. meningitidis opens up new avenues to vaccine development. It enables easy isolation of endotoxin-free purified proteins, outer membranes or even whole-cell prepns. for use in immunization.

IT 90365-28-9

RL: BSU (Biological study, unclassified); MFM (Metabolic formation); THU (Therapeutic use); BIOL (Biological study); FORM (Formation, nonpreparative); USES (Uses)

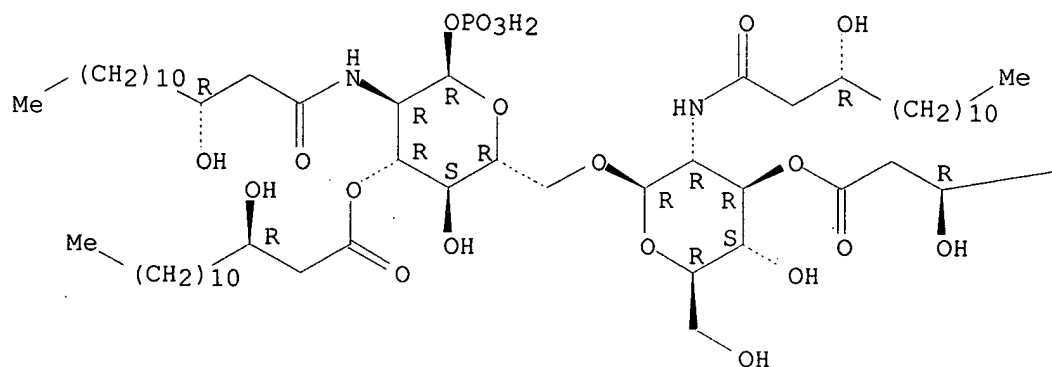
(**Gram-neg.** bacteria deficient in; viable Lipid A-deficient mutants of **Gram neg.** mucosal bacteria and their use in development of vaccines)

RN 90365-28-9 HCAPLUS

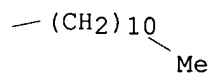
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Absolute stereochemistry.

PAGE 1-A



PAGE 1-B



REFERENCE COUNT:

6

THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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L8 ANSWER 4 OF 5 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1997:535707 HCAPLUS

DOCUMENT NUMBER: 127:245223

TITLE: Shortened hydroxyacyl chains on lipid A of Escherichia coli cells expressing a foreign UDP-N-acetylglucosamine O-acyltransferase

AUTHOR(S): Odegaard, Timna J.; Kaltashov, Igor A.; Cotter, Robert J.; **Steeghs, Liana; Van Der Ley, Peter**; Khan, Shahid; Maskell, Duncan J.; Raetz, Christian R. H.

CORPORATE SOURCE: Department of Biochemistry, Duke University Medical Center, Durham, NC, 27710, USA

SOURCE: J. Biol. Chem. (1997), 272(32), 19688-19696

CODEN: JBCHA3; ISSN: 0021-9258

PUBLISHER: American Society for Biochemistry and Molecular Biology

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The first reaction of lipid A biosynthesis in **Gram neg** . bacteria is catalyzed by UDP-N-acetylglucosamine (UDP-GlcNAc) O-acyltransferase, the product of the lpxA gene. The reaction involves the transfer of an acyl chain from hydroxyacyl-acyl carrier protein (ACP) to the glucosamine 3-OH position of UDP-GlcNAc. The lipid A isolated from Escherichia coli contains (R)-3-hydroxymyristate at the 3 and 3' positions. Accordingly, LpxA of E. coli is highly selective for (R)-3-hydroxymyristoyl-ACP over ACP thioesters of longer or shorter acyl chains. We now demonstrate that the lpxA gene from Neisseria meningitidis encodes a similar acyltransferase that selectively utilizes 3-hydroxylauroyl-ACP. Strains of E. coli harboring the temp.-sensitive lpxA2 mutation make very little lipid A and lose viability rapidly at 42.degree.C. We have created an E. coli strain in which the chromosomal lpxA2 mutation is complemented by the N. meningitidis lpxA gene introduced on a plasmid. This strain, R0138/pT06, grows similarly to wild type cells at 42.degree.C and produces wild type levels of lipid A. However, the lipid A isolated from R0138/pT06 contains mostly hydroxylaurate and hydroxydecanoate in the 3 and 3' positions. The strain R0138/pT06 is more susceptible than wild type to certain antibiotics at 42.degree.C. This is the first report of an E. coli strain growing with shortened hydroxyacyl chains on its lipid A. The lpxA gene product appears to be a crit. determinant of the length of the ester-linked hydroxyacyl chains found on lipid A in living cells.

IT 105843-69-4, UDP-N-acetylglucosamine O-acyltransferase

RL: BAC (Biological activity or effector, except adverse); BIOL (Biological study)

(gene lpxA of N. meningitidis; shortened hydroxyacyl chains on lipid of Escherichia coli cells expressing foreign UDP-N-acetylglucosamine O-acyltransferase)

RN 105843-69-4 HCAPLUS

CN Acyltransferase, uridine diphosphoacetylglucosamine (9CI) (CA INDEX NAME)

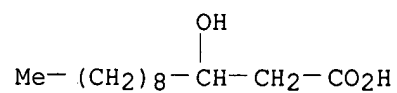
\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT 1883-13-2, 3-Hydroxylauric acid 14292-26-3,  
3-Hydroxydecanoic acid

RL: BPR (Biological process); BIOL (Biological study); PROC (Process)  
(shortened hydroxyacyl chains on lipid of Escherichia coli cells  
expressing foreign UDP-N-acetylglucosamine O-acyltransferase)

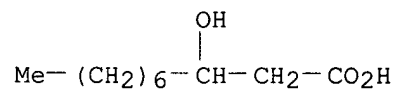
RN 1883-13-2 HCAPLUS

CN Dodecanoic acid, 3-hydroxy- (7CI, 8CI, 9CI) (CA INDEX NAME)



RN 14292-26-3 HCAPLUS

CN Decanoic acid, 3-hydroxy- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



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L8 ANSWER 5 OF 5 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1991:141403 HCAPLUS

DOCUMENT NUMBER: 114:141403

TITLE: Meningococcal class 1 outer-membrane protein vaccine

INVENTOR(S): Seid, Robert C., Jr.; Paradiso, Peter R.; Poolman, Jan T.; Hoogerhout, Peter; Wiertz, Emmanuel J. H. J.;  
**Van der Ley, Peter**; Heckels, John Edward;  
Clarke, Ian NicholasPATENT ASSIGNEE(S): Praxis Biologics, Inc., USA; Rijksinstituut voor  
Volksgezondheid en Milieuhygiene

SOURCE: PCT Int. Appl., 121 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9006696	A2	19900628	WO 1989-US5678	19891219
WO 9006696	A3	19900712		
W: AU, DK, FI, JP, NO, US				
RW: AT, BE, CH, DE, ES, FR, GB, IT, LU, NL, SE				
NL 8803111	A	19900716	NL 1988-3111	19881219
NL 8900036	A	19900716	NL 1989-36	19890106
NL 8901612	A	19900716	NL 1989-1612	19890626
AU 9048219	A1	19900710	AU 1990-48219	19891219
AU 640118	B2	19930819		
EP 449958	A1	19911009	EP 1990-901397	19891219
EP 449958	B1	19950322		
R: AT, BE, CH, DE, ES, FR, GB, IT, LI, LU, NL, SE				
JP 06503465	T2	19940421	JP 1990-501662	19891219
AT 120093	E	19950415	AT 1990-901397	19891219
ES 2070312	T3	19950601	ES 1990-901397	19891219
CA 2007248	AA	19900706	CA 1990-2007248	19900105
NO 9102369	A	19910806	NO 1991-2369	19910618
DK 9101174	A	19910815	DK 1991-1174	19910618
PRIORITY APPLN. INFO.:			NL 1988-3111	19881219
			NL 1989-30	19890106
			NL 1989-1612	19890626
			NL 1989-36	19890106
			WO 1989-US5678	19891219

AB Outer-membrane vesicles, class 1 outer-membrane proteins (OMPs) of *Neisseria meningitidis*, fragments or oligopeptide contg. epitopes of the class 1 OMPs, and antigenic conjugates are provided for immunization against meningococcal disease. Also provided are cloning and prodn. of fusion proteins contg. class 1 OMP epitopes and flagellin protein. Epitope sequences are identified, and DNA sequencing of class 1 OMP genes from different *N. Meningitidis* serosubtypes is presented. Thus, recombinant flagellins contg. either a VR1 (1st variable region of class 1 OMP), VR2, or a cassette of both VR1 and VR2 are effective in eliciting antibody response which was cross-reactive to purified Pl.16 (class 1 OMP subtype) and, to a lesser extent, to outer-membrane complex. Each construction also induced significant anti-flagellin titers; control wild type flagellin only induced antibody response to flagellin itself. Recombinant flagellin-oligosaccharide conjugate also prepd. and tested.

IT 132415-85-1 132415-86-2 132415-87-3

132654-40-1

RL: BIOL (Biological study)

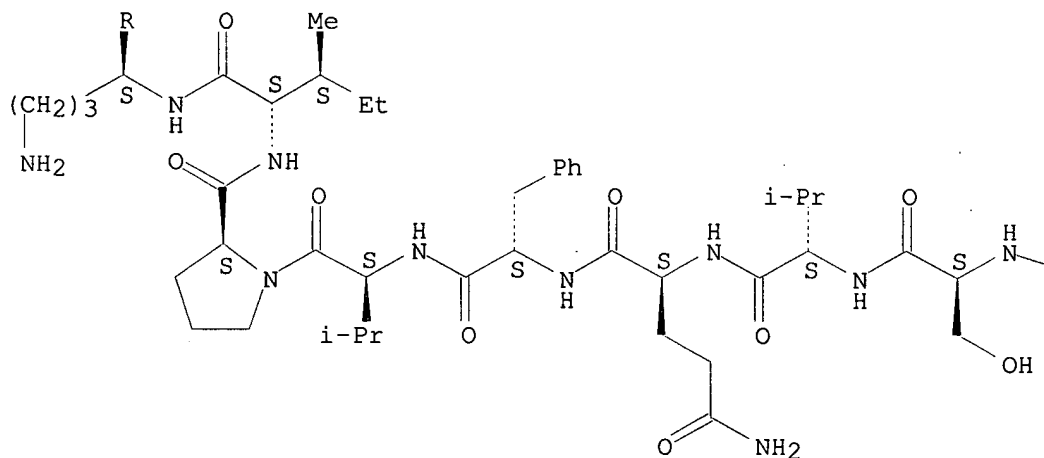
(amino-terminal fragment of meningococcal outer-membrane protein  
fragment, epitope identification for vaccine in relation to)

RN 132415-85-1 HCAPLUS

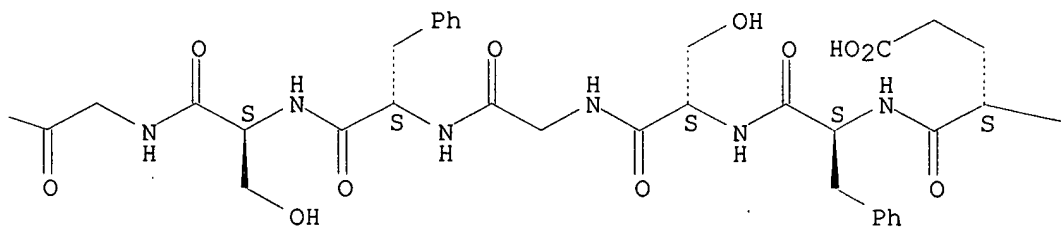
CN L-Serine, L-prolyl-L-valyl-L-seryl-L-valyl-L-arginyl-L-tyrosyl-L-.alpha.-  
aspartyl-L-seryl-L-prolyl-L-.alpha.-glutamyl-L-phenylalanyl-L-serylglycyl-  
L-phenylalanyl-L-serylglycyl-L-seryl-L-valyl-L-glutamyl-L-phenylalanyl-L-  
valyl-L-prolyl-L-isoleucyl-L-ornithyl-L-asparaginyl- (9CI) (CA INDEX  
NAME)

Absolute stereochemistry.

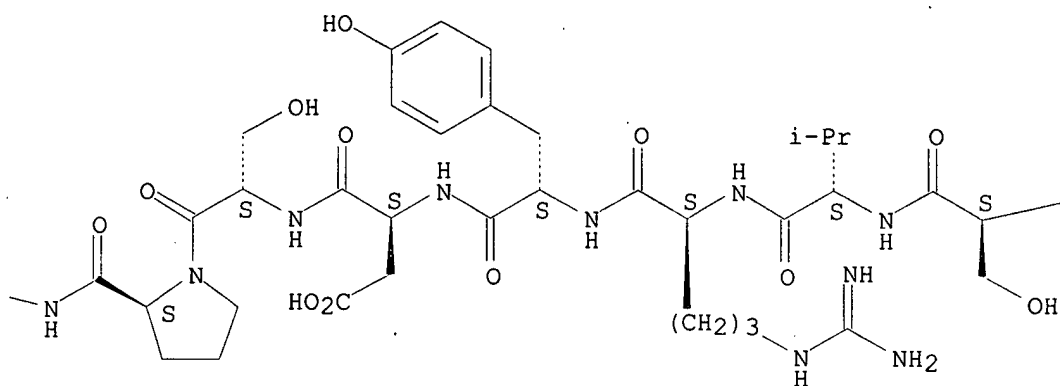
PAGE 1-A



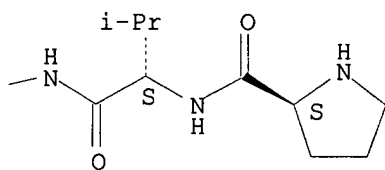
PAGE 1-B



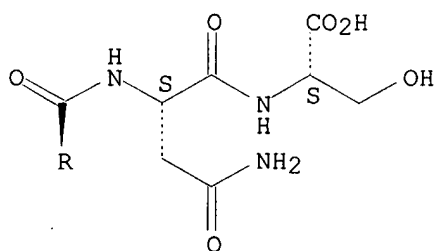
PAGE 1-C



PAGE 1-D



PAGE 2-A



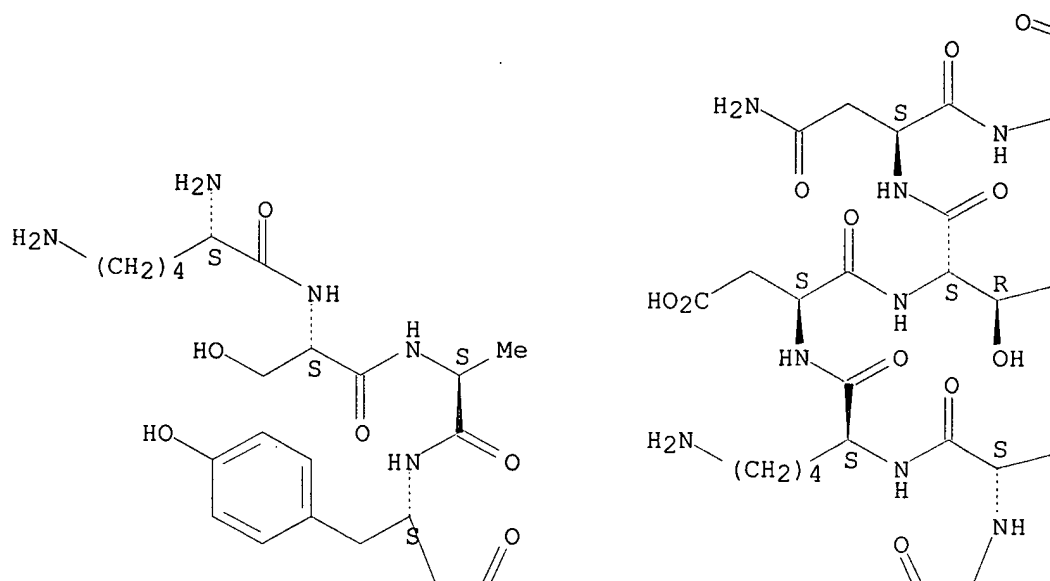
RN 132415-86-2 HCAPLUS

CN L-Asparagine, L-lysyl-L-seryl-L-alanyl-L-tyrosyl-L-prolyl-L-alanyl-L-tyrosyl-L-tyrosyl-L-threonyl-L-lysyl-L-.alpha.-aspartyl-L-threonyl-L-asparaginyl-L-asparaginyl- (9CI) (CA INDEX NAME)

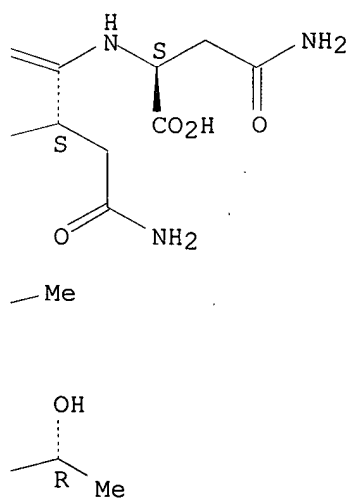
Absolute stereochemistry.



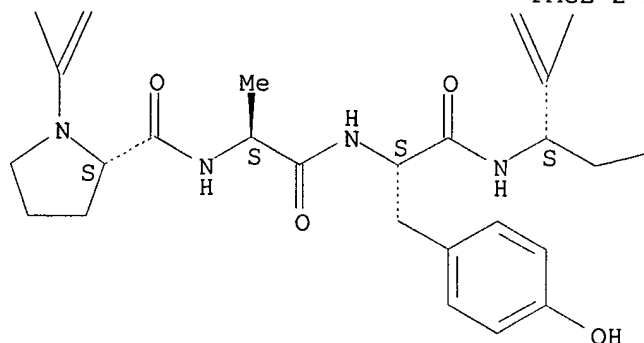
PAGE 1-A



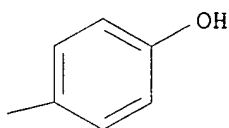
PAGE 1-B



PAGE 2-A



PAGE 2-B

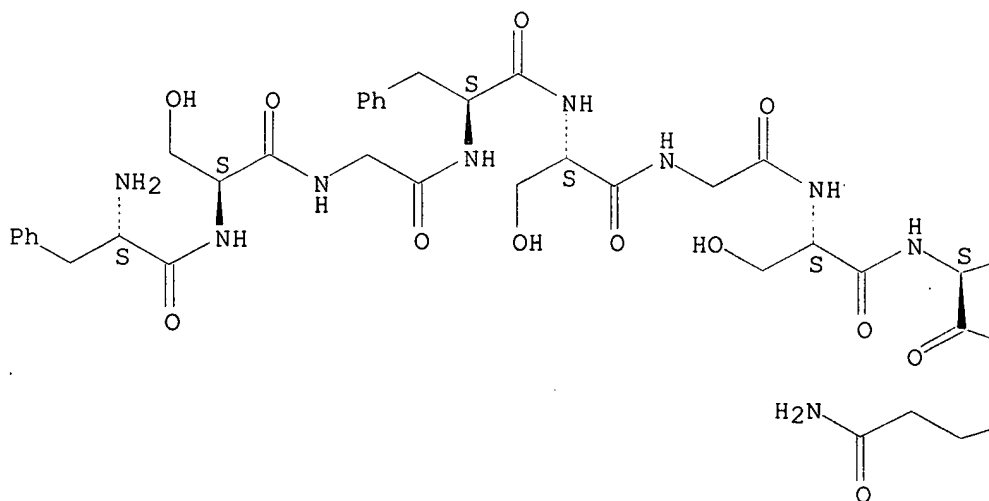


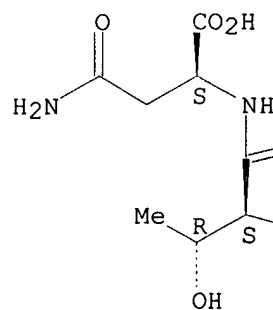
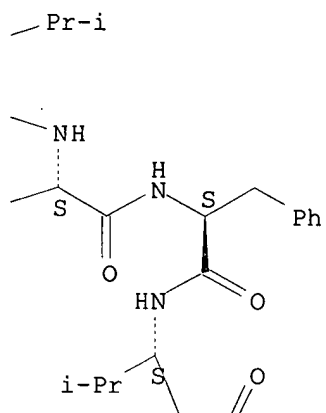
RN 132415-87-3 HCAPLUS

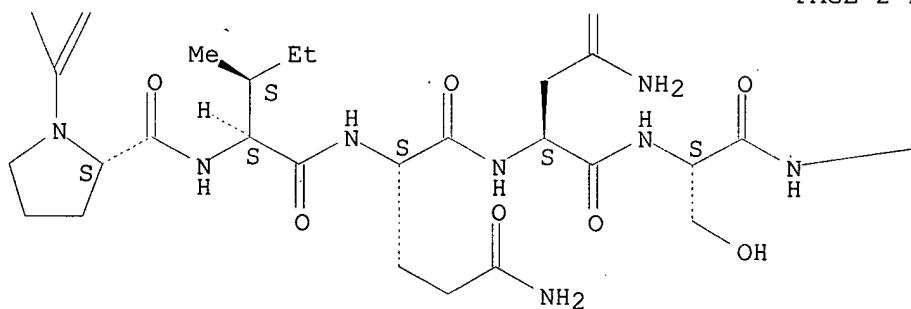
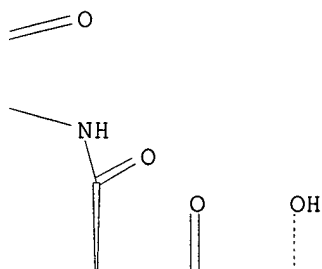
CN L-Asparagine, L-phenylalanyl-L-serylglycyl-L-phenylalanyl-L-serylglycyl-L-seryl-L-valyl-L-glutamyl-L-phenylalanyl-L-valyl-L-prolyl-L-isoleucyl-L-glutamyl-L-asparagyl-L-seryl-L-lysyl-L-seryl-L-alanyl-L-tyrosyl-L-threonyl-L-prolyl-L-alanyl-L-tyrosyl-L-tyrosyl-L-threonyl-L-.alpha.-aspartyl-L-threonyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

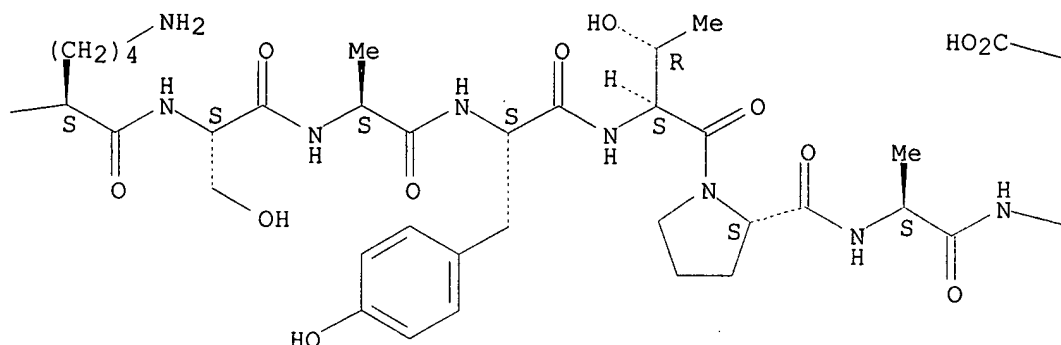
PAGE 1-A



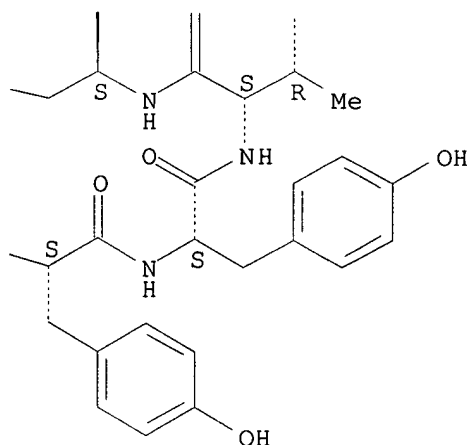




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RN 132654-40-1 HCAPLUS

CN L-Lysine, L-prolyl-L-valyl-L-seryl-L-valyl-L-arginyl-L-tyrosyl-L-.alpha.-  
aspartyl-L-seryl-L-prolyl-L-.alpha.-glutamyl-L-phenylalanyl-L-serylglycyl-  
L-phenylalanyl-L-serylglycyl-L-seryl-L-valyl-L-glutaminyl-L-phenylalanyl-L-  
valyl-L-prolyl-L-isoleucyl-L-glutaminyl-L-asparaginyll-L-seryl-L-lysyl-L-  
seryl-L-alanyl-L-tyrosyl-L-prolyl-L-alanyl-L-tyrosyl-L-tyrosyl-L-threonyl-  
(9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT 132442-52-5

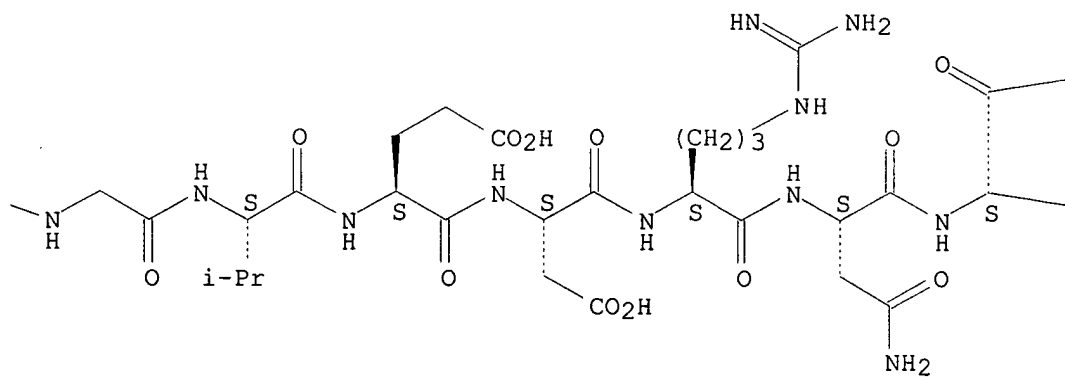
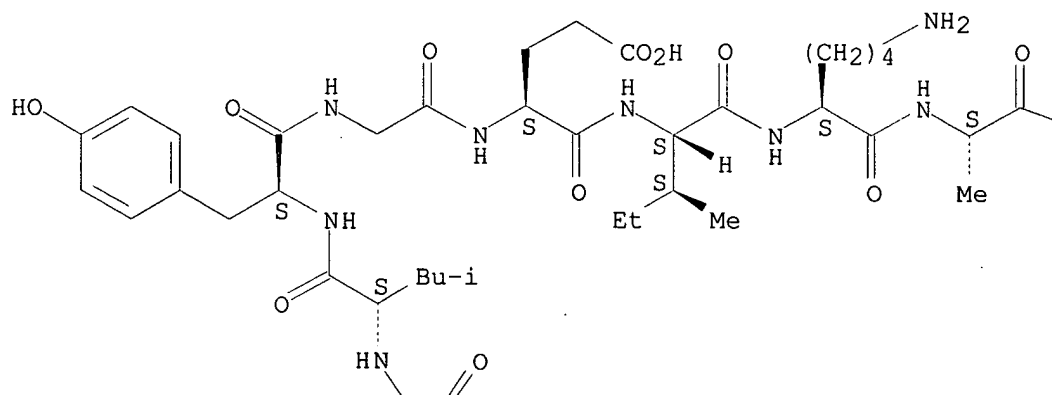
RL: BIOL (Biological study)

(amino-terminal fragment of meningococcal outer-membrane protein,  
epitope identification for vaccine in relation to)

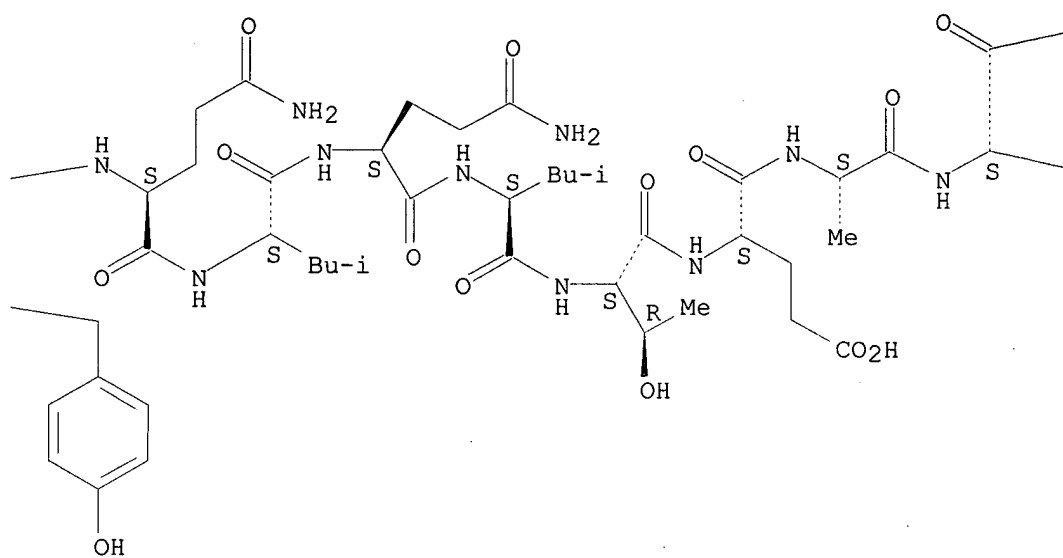
RN 132442-52-5 HCAPLUS

CN L-Asparagine, L-.alpha.-aspartyl-L-valyl-L-seryl-L-leucyl-L-tyrosylglycyl-  
L-.alpha.-glutamyl-L-isoleucyl-L-lysyl-L-alanylglycyl-L-valyl-L-.alpha.-  
glutamyl-L-.alpha.-aspartyl-L-arginyl-L-asparaginyll-L-tyrosyl-L-glutaminyl-  
L-leucyl-L-glutaminyl-L-leucyl-L-threonyl-L-.alpha.-glutamyl-L-alanyl-L-  
glutaminyl-L-alanyl-L-alanylglycyl- (9CI) (CA INDEX NAME)

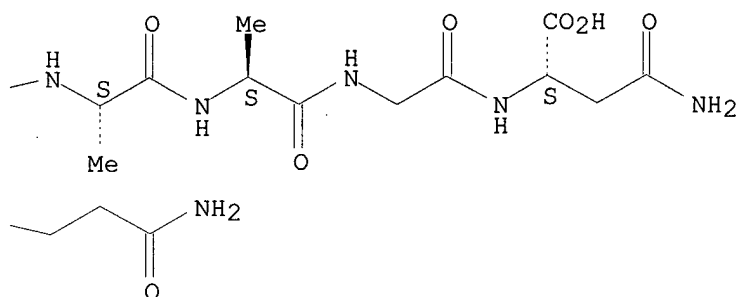
Absolute stereochemistry.

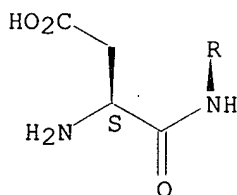
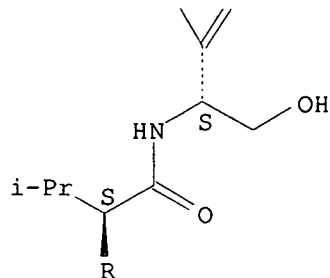


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IT 132263-35-5 132263-36-6 132263-42-4  
 132263-43-5 132263-44-6 132263-45-7  
 132263-46-8

RL: BIOL (Biological study)

(as primer in polymerase chain reaction for DNA sequencing of  
 outer-membrane protein genes of *Neisseria meningitidis* serosubtypes)

RN 132263-35-5 HCAPLUS

CN DNA, d(G-C-A-G-A-T-T-G-G-C-A-G-T-C-A-G-A-T-T-G-C-T-T) (9CI) (CA INDEX  
 NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 132263-36-6 HCAPLUS

CN DNA, d(T-T-G-A-A-G-G-A-C-G-T-A-T-C-G-G-G-T-G-T-T-T-C-G) (9CI) (CA INDEX  
 NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 132263-42-4 HCAPLUS

CN DNA, d(T-G-T-A-A-A-A-C-G-A-C-G-G-C-C-A-G-T-A-A-C-T-G-A-T-T-C-G-C-A-A-C-G-C-  
 G-A-C-C-C-G) (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 132263-43-5 HCAPLUS

CN DNA, d(T-G-T-A-A-A-A-C-G-A-C-G-G-C-C-A-G-T-G-C-A-G-A-T-T-G-G-C-A-G-T-C-A-G-  
 A-T-T-G-C-A) (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 132263-44-6 HCAPLUS

CN DNA, d(T-G-T-A-A-A-A-C-G-A-C-G-G-C-C-A-G-T-G-G-G-A-T-C-G-G-T-A-C-C-T-T-T-G-  
 G-C-T-T-G-A) (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 132263-45-7 HCAPLUS

CN DNA, d(T-G-T-A-A-A-A-C-G-A-C-G-G-C-C-A-G-T-C-A-T-C-A-G-G-T-A-C-A-C-C-G-C-C-  
 T-G-A-C-G-G-G-C) (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 132263-46-8 HCAPLUS



CN DNA, d(T-G-T-A-A-A-A-C-G-A-C-G-G-C-C-A-G-T-G-G-C-G-A-A-T-T-C-G-G-T-A-C-G-C-T-G-C-G-C-G-C-C) (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT 132415-76-0D, carrier protein conjugates 132415-77-1D, carrier protein conjugates 132415-79-3D, carrier protein conjugates 132415-80-6D, carrier protein conjugates 132415-81-7D, carrier protein conjugates 132415-82-8D, carrier protein conjugates 132415-83-9D, carrier protein conjugates 132415-84-0D, carrier protein conjugates 132416-21-8D, cross-reactive material and albumin conjugates 132416-22-9D, cross-reactive material and albumin conjugates 132442-51-4D, carrier protein conjugates

RL: BIOL (Biological study)

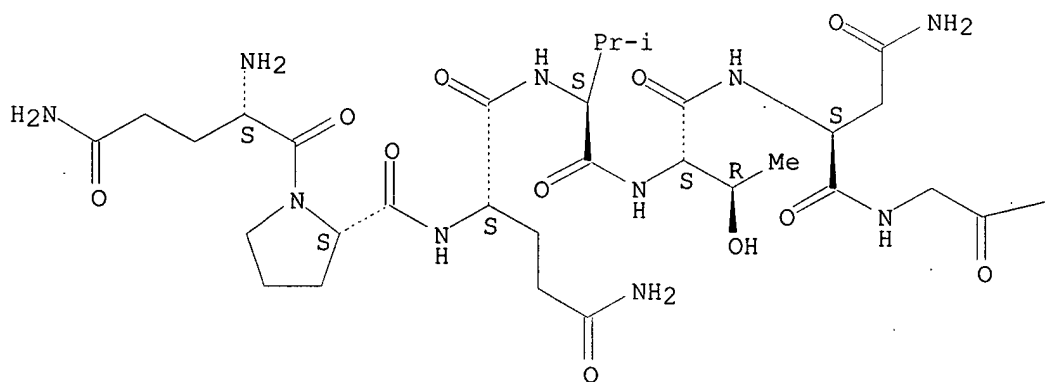
(for vaccine against meningococcal infection)

RN 132415-76-0 HCAPLUS

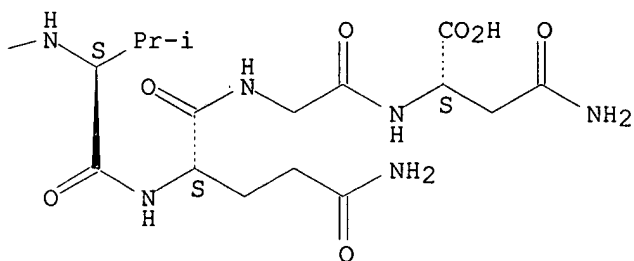
CN L-Asparagine, N2-[N-[N2-[N-[N-[N2-[N-[N-[N2-(1-L-glutaminyL-L-prolyl)-L-glutaminyL]-L-valyl]-L-threonyl]-L-asparaginyL]glycyl]-L-valyl]-L-glutaminyL]glycyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



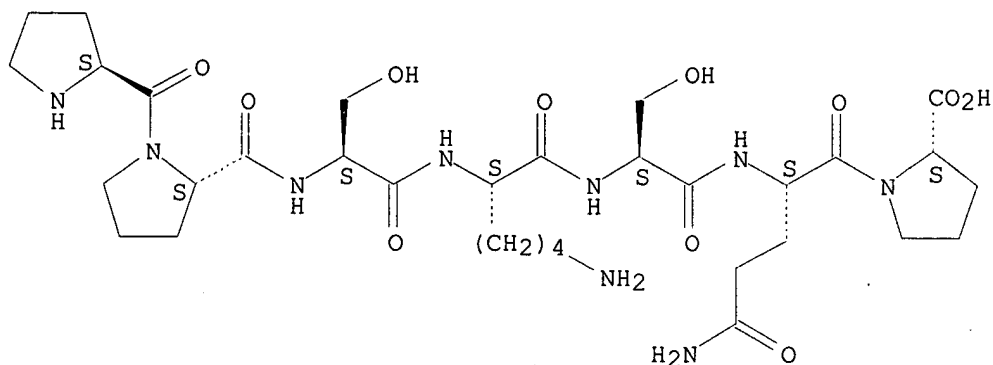
PAGE 1-B



RN 132415-77-1 HCAPLUS

CN L-Proline, 1-[N2-[N-[N2-[N-(1-L-prolyl-L-prolyl)-L-seryl]-L-lysyl]-L-seryl]-L-glutamyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

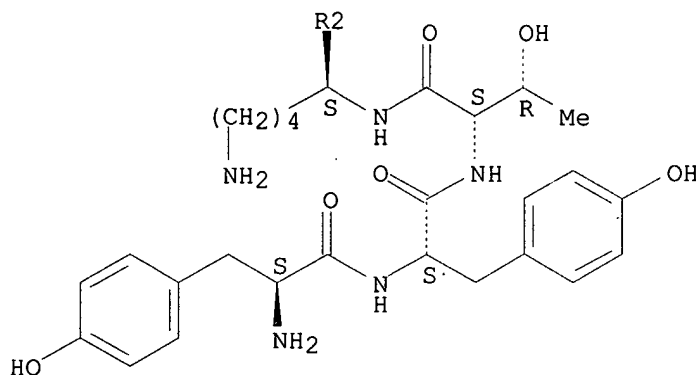


RN 132415-79-3 HCAPLUS

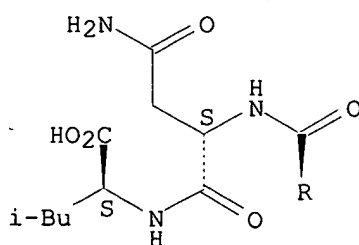
CN L-Leucine, L-tyrosyl-L-tyrosyl-L-threonyl-L-lysyl-L-.alpha.-aspartyl-L-threonyl-L-asparaginyl-L-asparaginyl-L-asparaginyl- (9CI) (CA INDEX NAME)

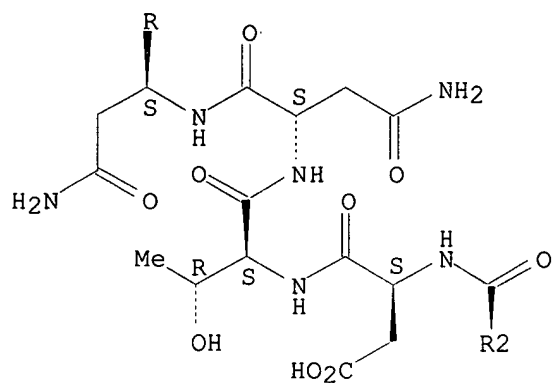
Absolute stereochemistry.

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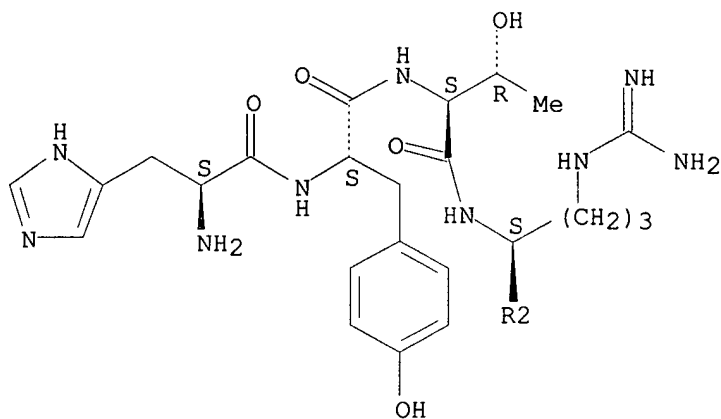


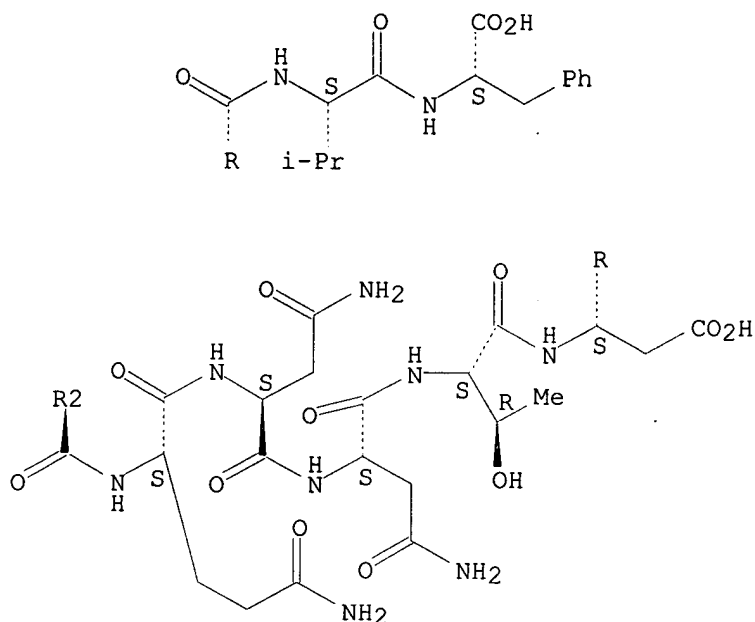


RN 132415-80-6 HCAPLUS

CN L-Phenylalanine, N-[N-[N-[N-[N2-[N2-[N2-[N2-[N-(N-L-histidyl-L-tyrosyl)-L-threonyl]-L-arginyl]-L-glutamyl]-L-asparaginy]-L-asparaginy]-L-threonyl]-L-.alpha.-aspartyl]-L-valyl]- (9CI) (CA INDEX NAME)

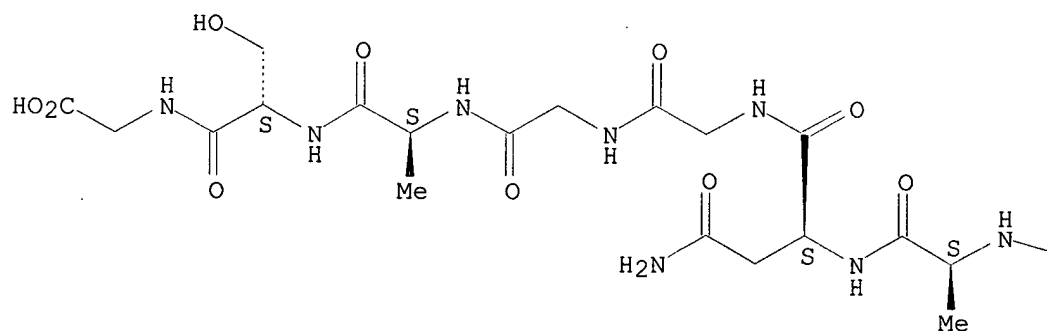
Absolute stereochemistry.



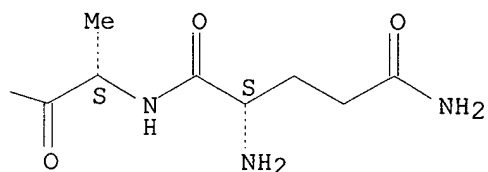


RN 132415-81-7 HCAPLUS  
 CN Glycine, N-[N-[N-[N-[N-[N2-[N-(N-L-glutaminyL-L-alanyl)-L-alanyl]-L-asparaginyL]glycyl]glycyl]-L-alanyl]-L-seryl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



PAGE 1-B

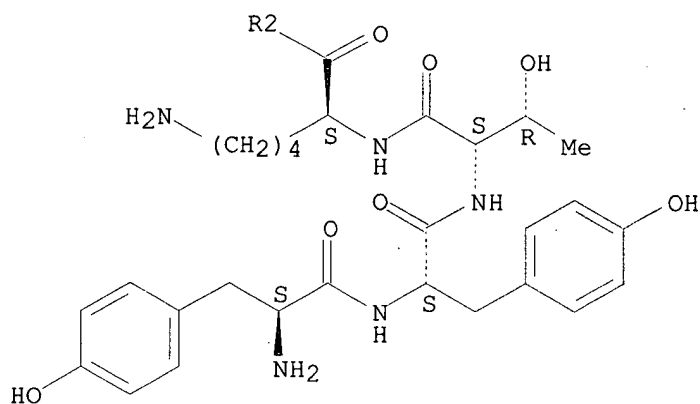


RN 132415-82-8 HCAPLUS

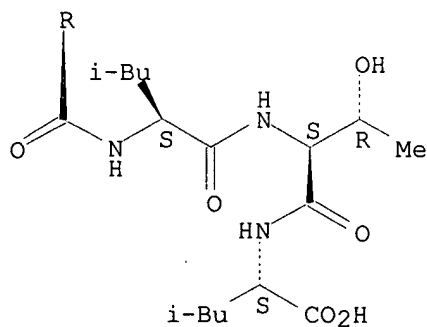
L-Leucine, N-[N-[N-[N2-[N2-[N2-[N2-[N-[N2-[N2-[N-(N-L-tyrosyl-L-tyrosyl)-L-threonyl]-L-lysyl]-L-asparaginyl]-L-threonyl]-L-asparaginyl]-L-asparaginyl]-L-asparaginyl]-L-leucyl]-L-threonyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

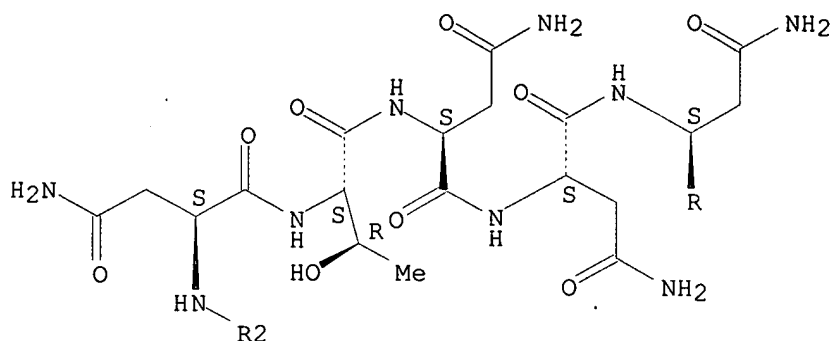
PAGE 1-A



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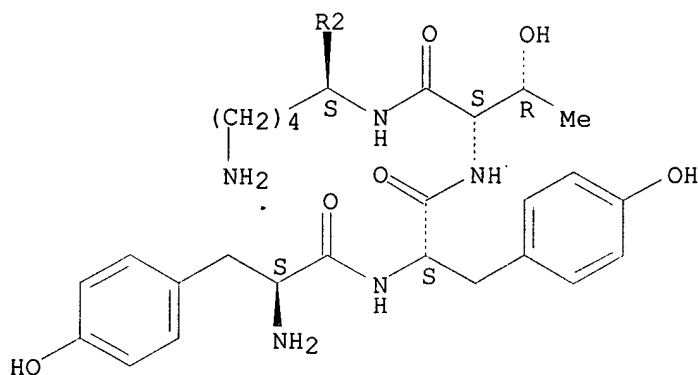


RN 132415-83-9 HCAPLUS

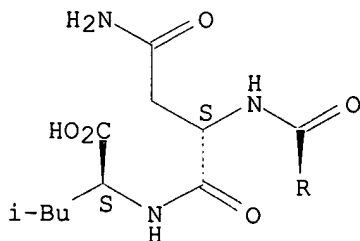
CN L-Leucine, N-[N2-[N2-[N2-[N-[N2-[N2-[N-(N-L-tyrosyl-L-tyrosyl)-L-threonyl]-L-lysyl]-L-asparaginyl]-L-threonyl]-L-asparaginyl]-L-asparaginyl]-L-asparaginyl]- (9CI) (CA INDEX NAME)

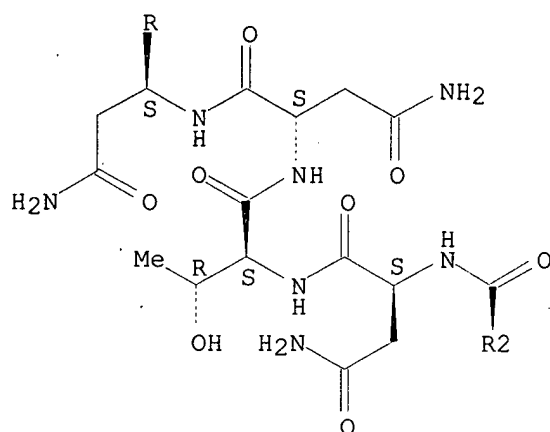
Absolute stereochemistry.

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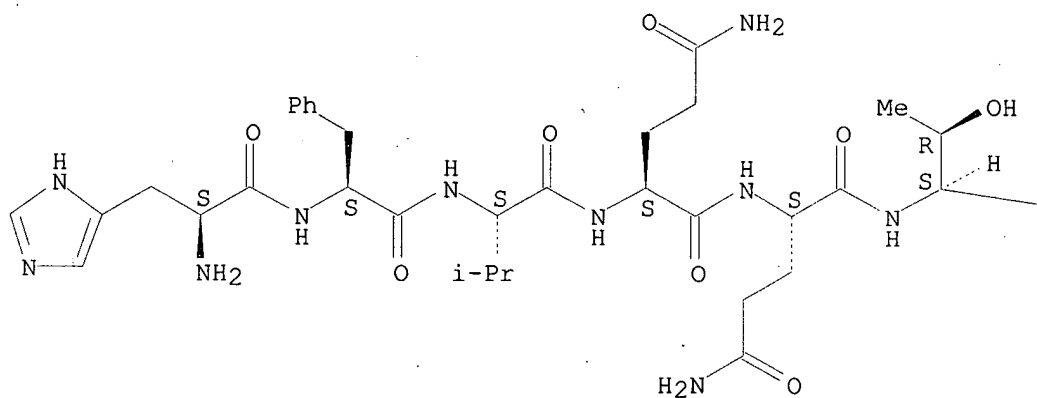




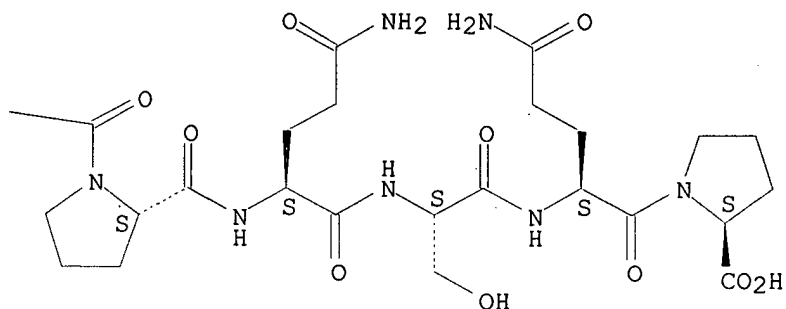
RN 132415-84-0 HCAPLUS

CN L-Proline, 1-[N2-[N-[N2-[1-[N-[N2-[N2-[N-(N-L-histidyl-L-phenylalanyl)-L-valyl]-L-glutaminy]-L-glutaminy]-L-threonyl]-L-prolyl]-L-glutaminy]-L-seryl]-L-glutaminy]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



PAGE 1-B

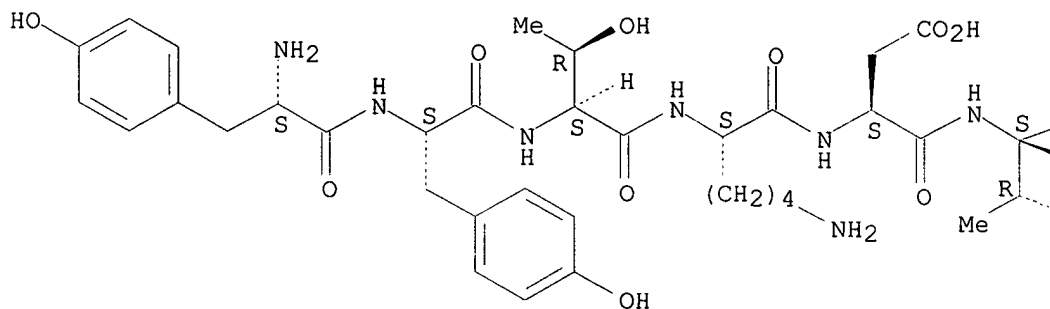


RN 132416-21-8 HCAPLUS

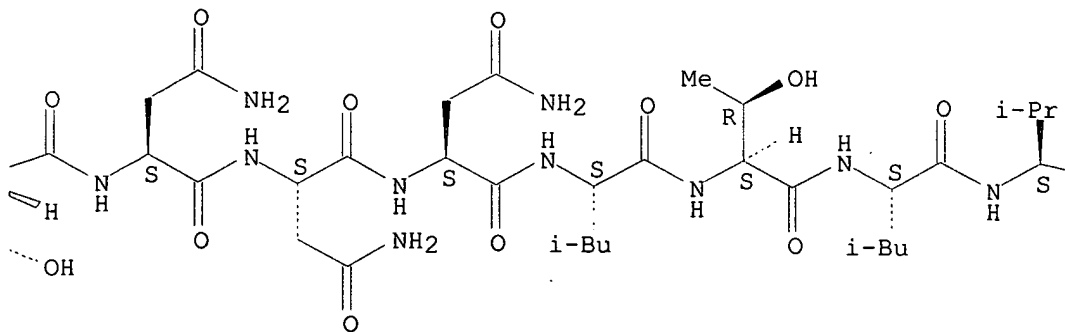
CN L-Cysteine, L-tyrosyl-L-tyrosyl-L-threonyl-L-lysyl-L-.alpha.-aspartyl-L-threonyl-L-asparaginyl-L-asparaginyl-L-asparaginyl-L-leucyl-L-threonyl-L-leucyl-L-valyl-L-prolyl-L-alanylglycyl-L-alanyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A

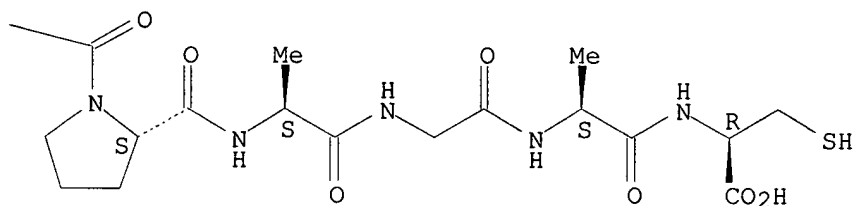


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PAGE 1-C

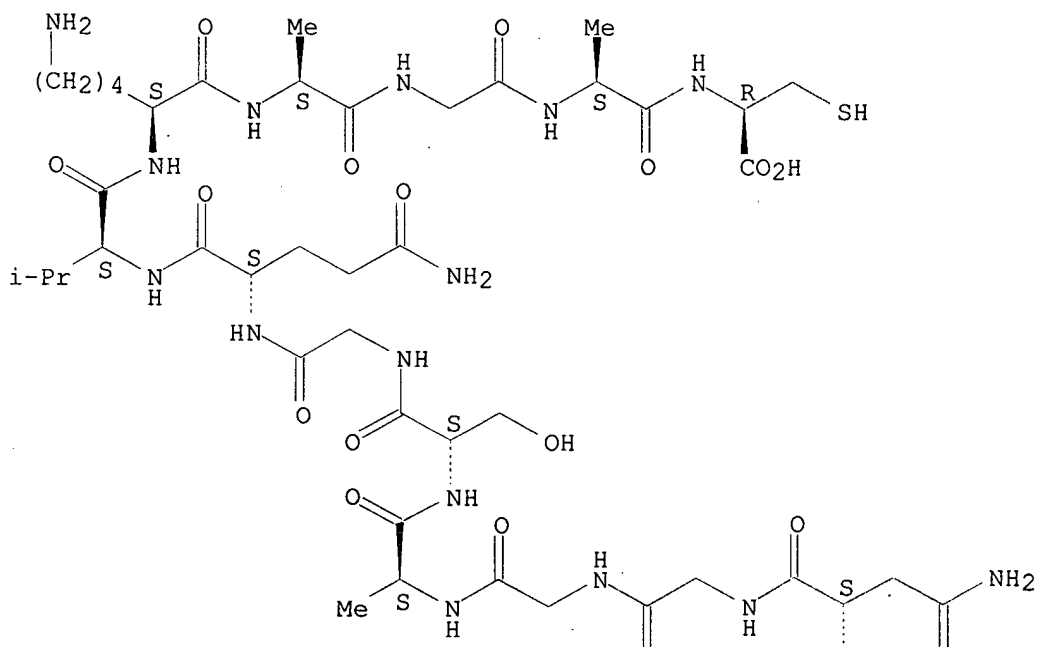


RN 132416-22-9 HCAPLUS

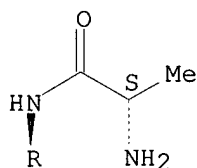
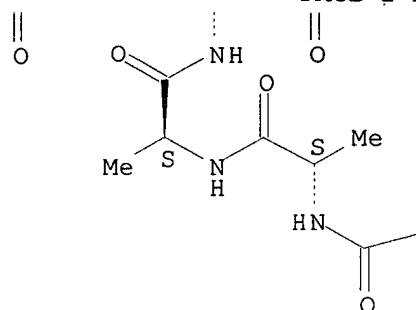
CN L-Cysteine, L-alanyl-L-glutaminyl-L-alanyl-L-alanyl-L-asparaginylglycylglycyl-L-alanyl-L-serylglycyl-L-glutaminyl-L-valyl-L-lysyl-L-alanylglycyl-L-alanyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

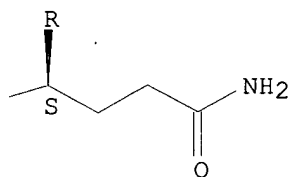
PAGE 1-A



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PAGE 2-B

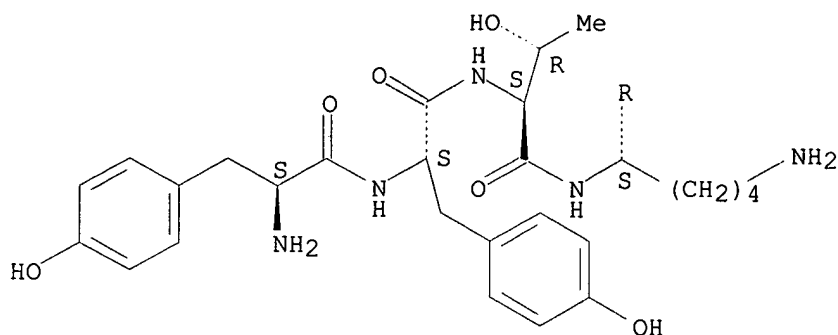


RN 132442-51-4 HCAPLUS

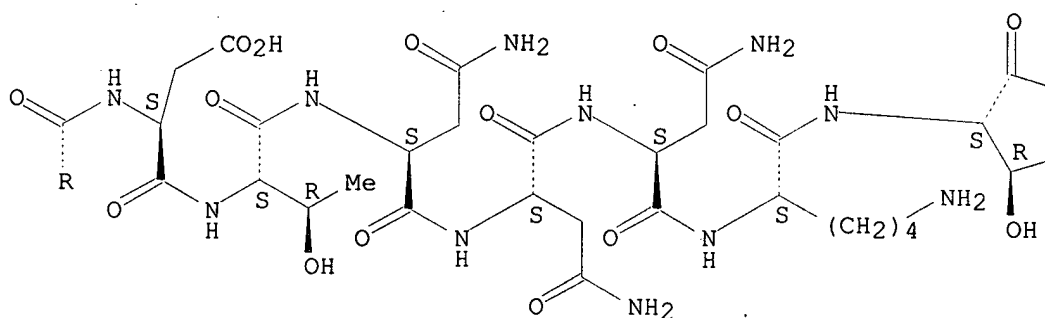
CN L-Lysine, N2-[N-[N2-[N2-[N2-[N2-[N-[N-[N2-[N-(N-L-tyrosyl-L-tyrosyl)-L-threonyl]-L-lysyl]-L-.alpha.-aspartyl]-L-threonyl]-L-asparaginyl]-L-asparaginyl]-L-asparaginyl]-L-lysyl]-L-threonyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

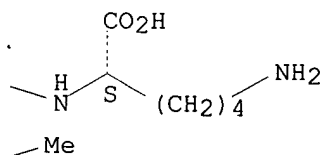
PAGE 1-A



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IT 132416-23-0 132416-24-1 132416-25-2  
 132416-26-3 132416-27-4 132416-28-5  
 132416-29-6 132416-30-9 132416-31-0  
 132416-32-1 132438-24-5 132442-55-8  
 132442-56-9 132442-57-0

RL: BIOL (Biological study)

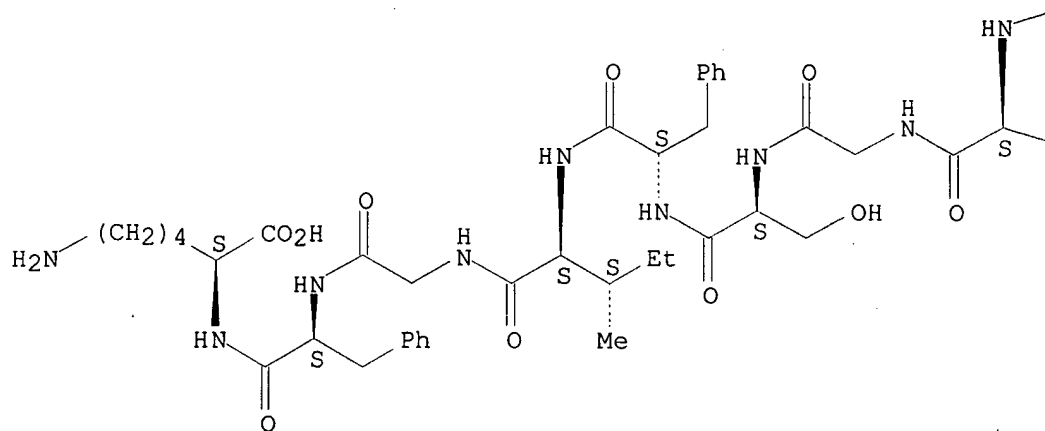
(menginococcal outer-membrane protein synthetic peptide with predicted  
 Trell epitope, vaccine in relation to)

RN 132416-23-0 HCAPLUS

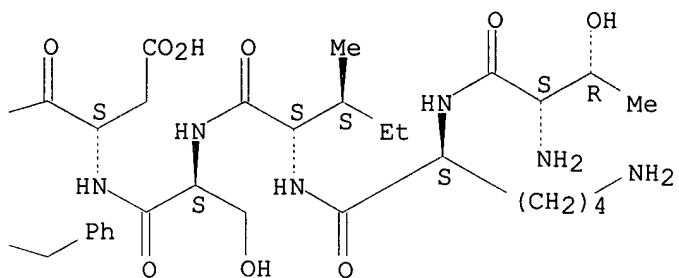
CN L-Lysine, L-threonyl-L-lysyl-L-isoleucyl-L-seryl-L-.alpha.-aspartyl-L-  
 phenylalanyl-glycyl-L-seryl-L-phenylalanyl-L-isoleucylglycyl-L-phenylalanyl-  
 (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



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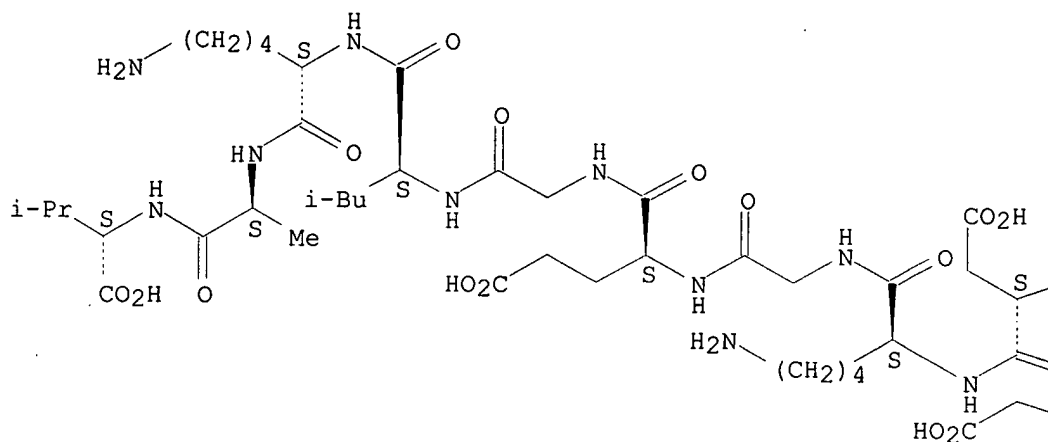


RN 132416-24-1 HCAPLUS

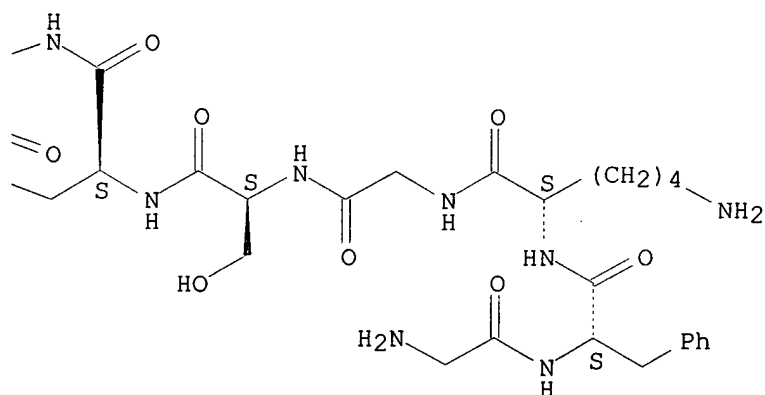
CN L-Valine, glycyl-L-phenylalanyl-L-lysylglycyl-L-seryl-L-.alpha.-glutamyl-L-.alpha.-aspartyl-L-lysylglycyl-L-.alpha.-glutamylglycyl-L-leucyl-L-lysyl-L-alanyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

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PAGE 1-B

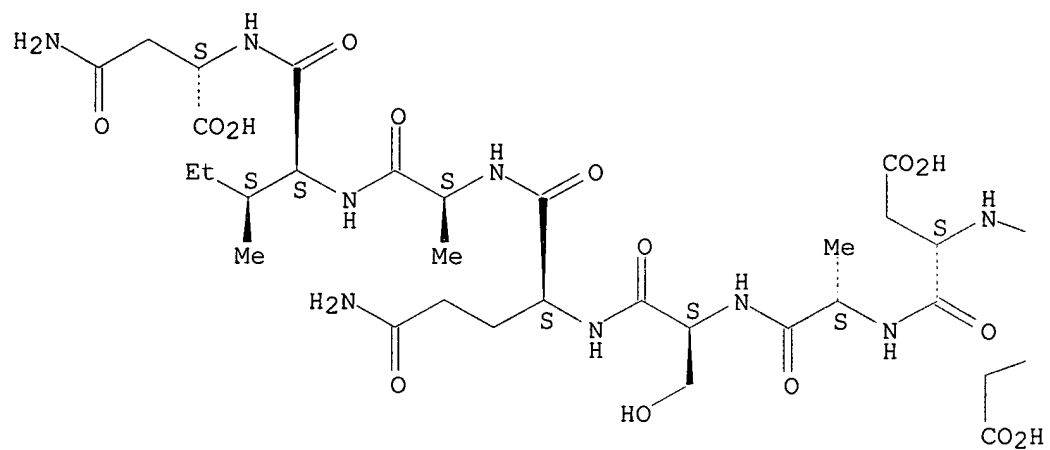


RN 132416-25-2 HCAPLUS

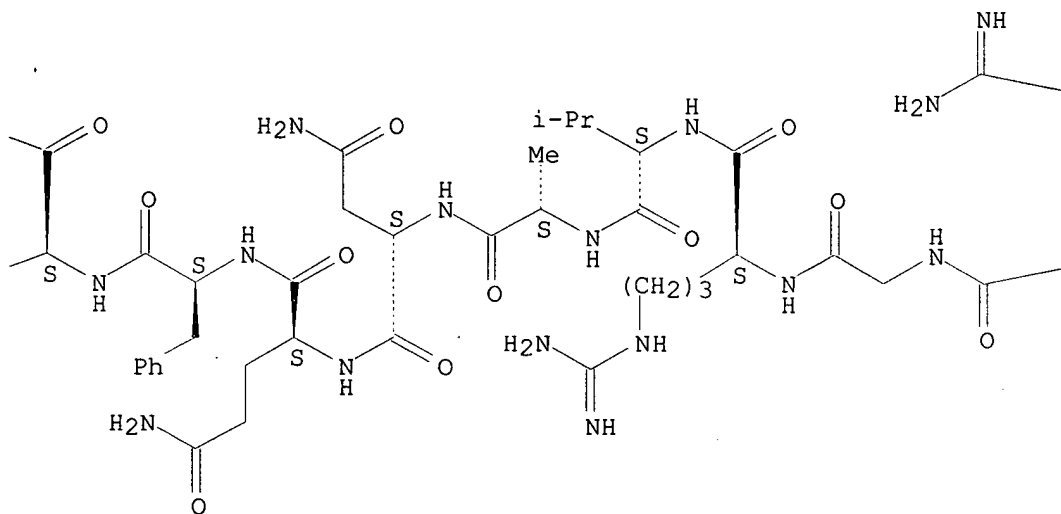
CN L-Asparagine, L-threonyl-L-lysyl-L-arginyl-L-alanylglycyl-L-arginyl-L-valyl-L-alanyl-L-asparaginyl-L-glutaminyl-L-phenylalanyl-L-.alpha.-aspartyl-L-.alpha.-aspartyl-L-alanyl-L-seryl-L-glutaminyl-L-alanyl-L-isoleucyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

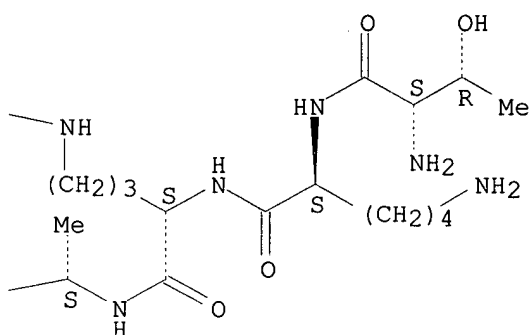
PAGE 1-A



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PAGE 1-C

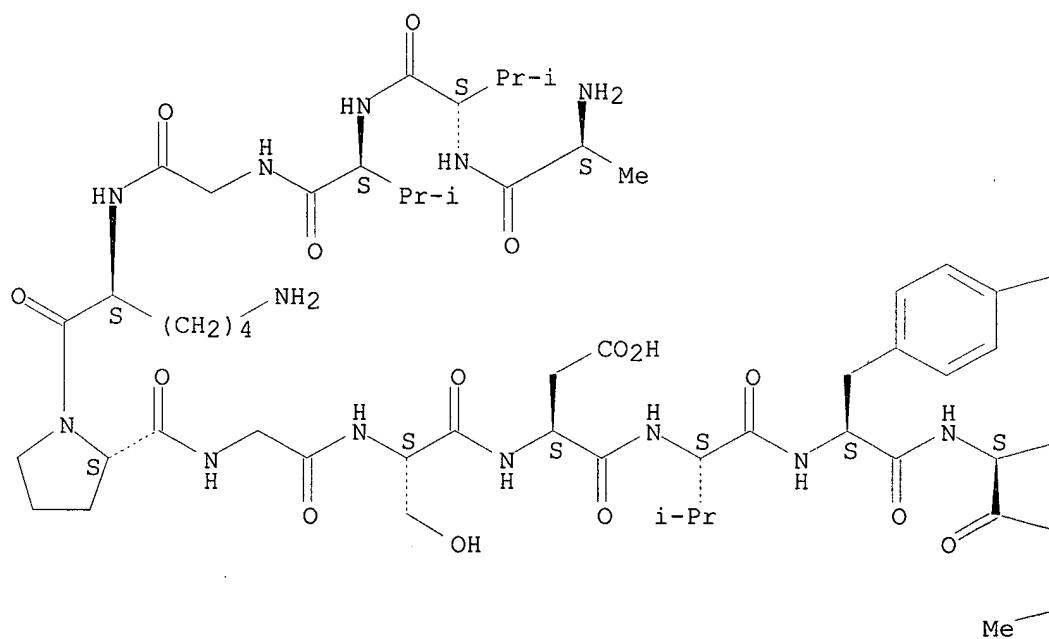


RN 132416-26-3 HCAPLUS

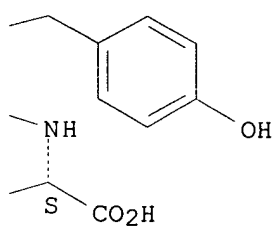
L-Alanine, L-alanyl-L-valyl-L-valylglycyl-L-lysyl-L-prolylglycyl-L-seryl-L-  
 .alpha.-aspartyl-L-valyl-L-tyrosyl-L-tyrosyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

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—OH

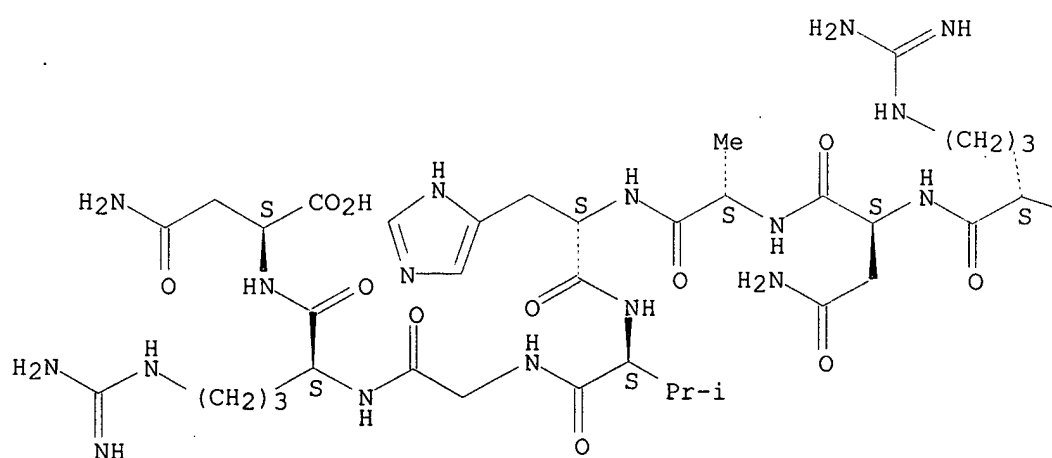


RN 132416-27-4 HCAPLUS

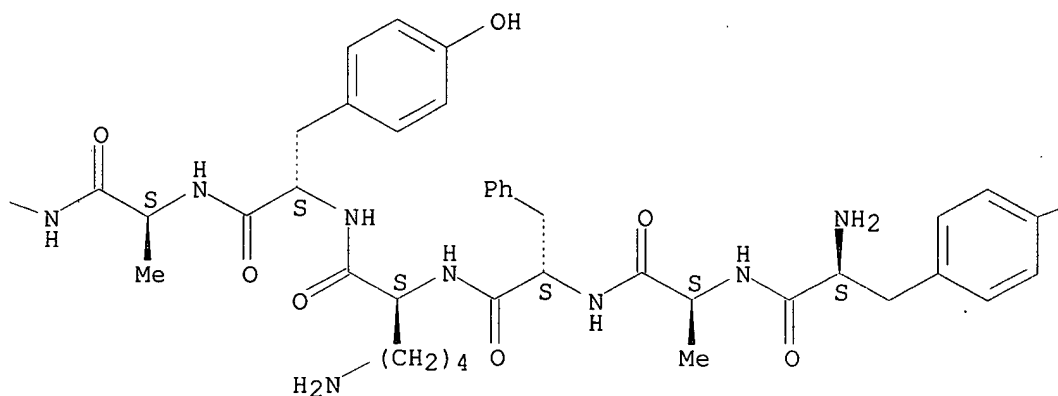
CN L-Asparagine, L-tyrosyl-L-alanyl-L-phenylalanyl-L-lysyl-L-tyrosyl-L-alanyl-L-arginyl-L-asparaginyl-L-alanyl-L-histidyl-L-valylglycyl-L-arginyl- (9CI)  
(CA INDEX NAME)

Absolute stereochemistry.

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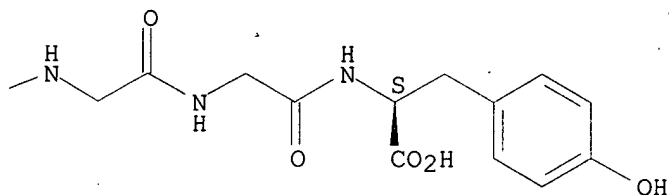


—OH

RN 132416-28-5 HCAPLUS  
 CN L-Tyrosine, L-.alpha.-aspartyl-L-.alpha.-glutamyl-L-alanyl-L-lysylglycyl-L-threonyl-L-.alpha.-aspartyl-L-prolyl-L-leucyl-L-lysyl-L-asparaginyl-L-histidyl-L-glutaminyl-L-valyl-L-histidyl-L-arginyl-L-leucyl-L-threonylglycylglycyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

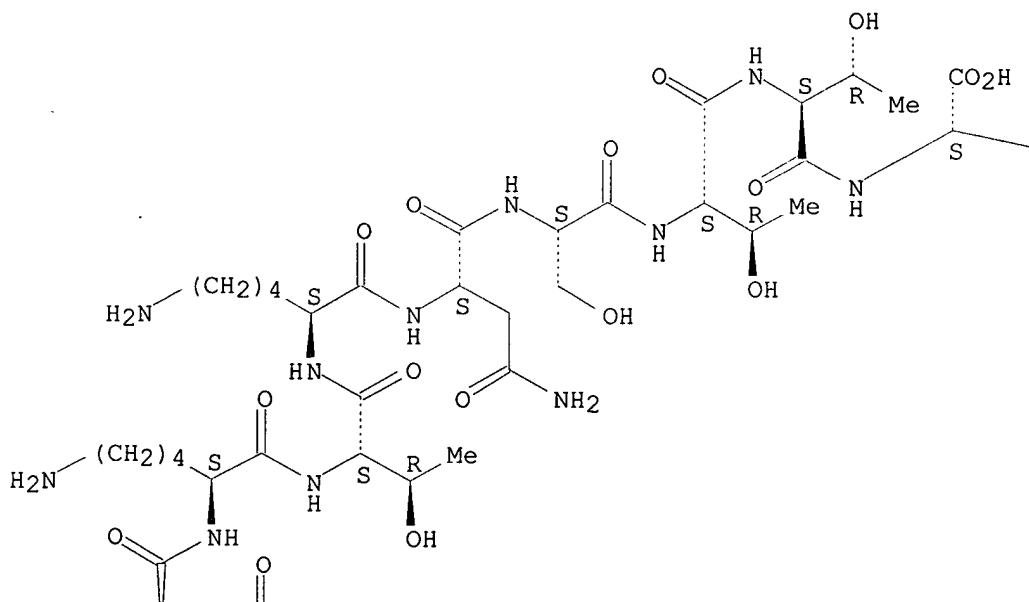




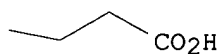
RN 132416-29-6 HCAPLUS

CN L-Glutamic acid, L-lysyl-L-seryl-L-.alpha.-glutamyl-L-asparaginyglycyl-L-.alpha.-aspartyl-L-lysyl-L-alanyl-L-lysyl-L-threonyl-L-lysyl-L-asparaginy-L-seryl-L-threonyl-L-threonyl- (9CI) (CA INDEX NAME)

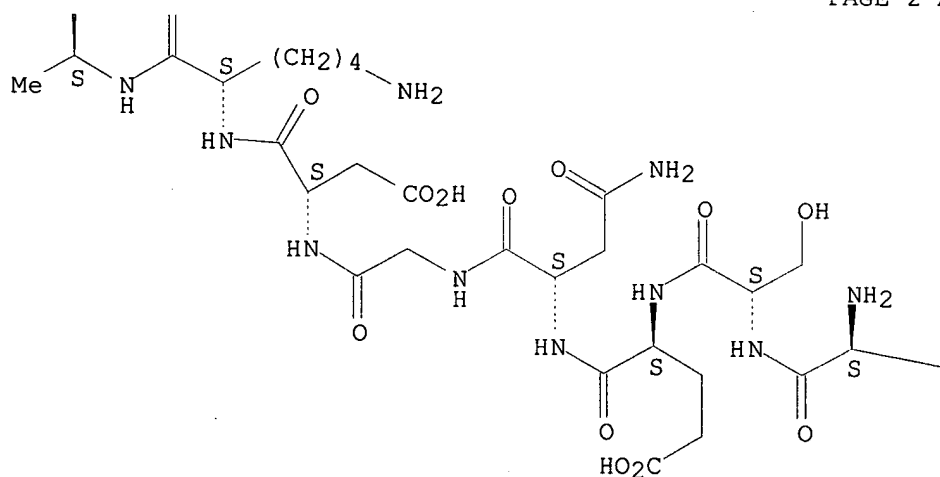
Absolute stereochemistry.



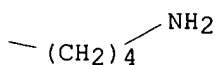
PAGE 1-B



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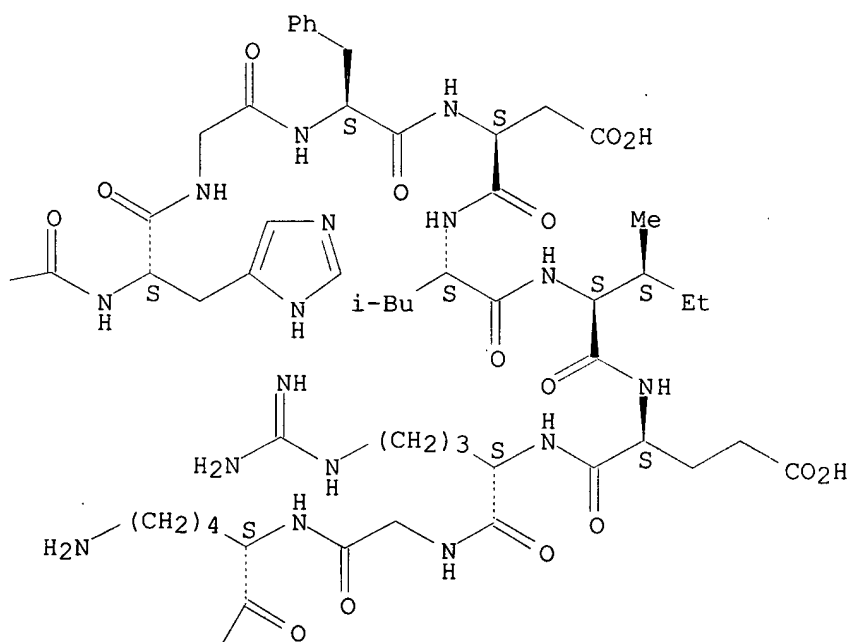
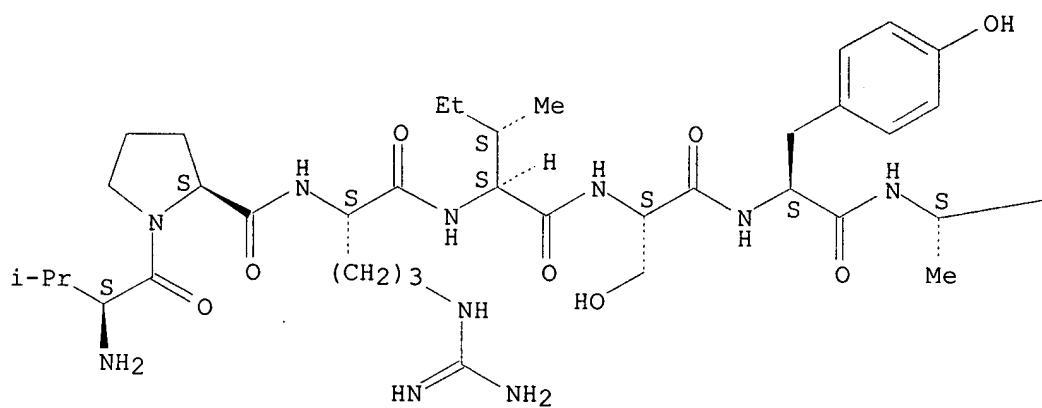
PAGE 2-B



RN 132416-30-9 HCAPLUS

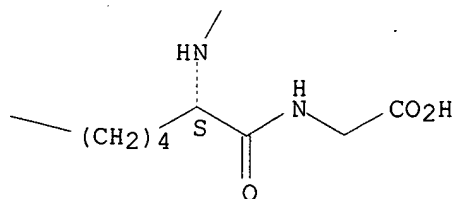
CN Glycine, L-valyl-L-prolyl-L-arginyl-L-isoleucyl-L-seryl-L-tyrosyl-L-alanyl-L-histidylglycyl-L-phenylalanyl-L-.alpha.-aspartyl-L-leucyl-L-isoleucyl-L-.alpha.-glutamyl-L-arginylglycyl-L-lysyl-L-lysyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



H<sub>2</sub>N—

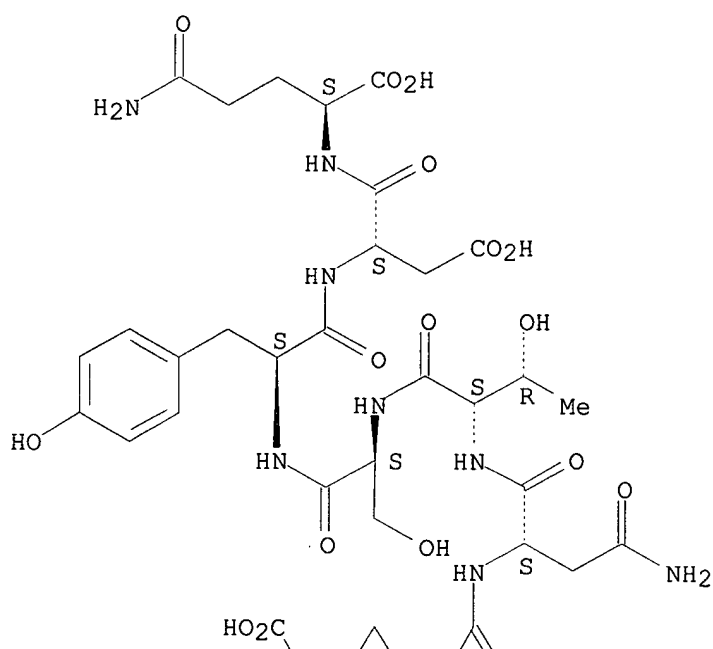
PAGE 2-B



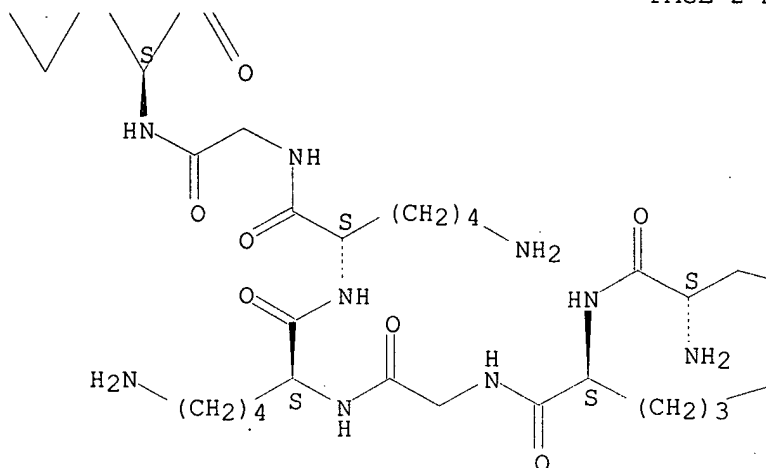
RN 132416-31-0 HCAPLUS  
 CN L-Glutamine, L-.alpha.-glutamyl-L-arginylglycyl-L-lysyl-L-lysylglycyl-L-.alpha.-glutamyl-L-asparaginyl-L-threonyl-L-seryl-L-tyrosyl-L-.alpha.-aspartyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

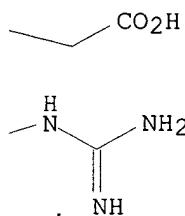
PAGE 1-A



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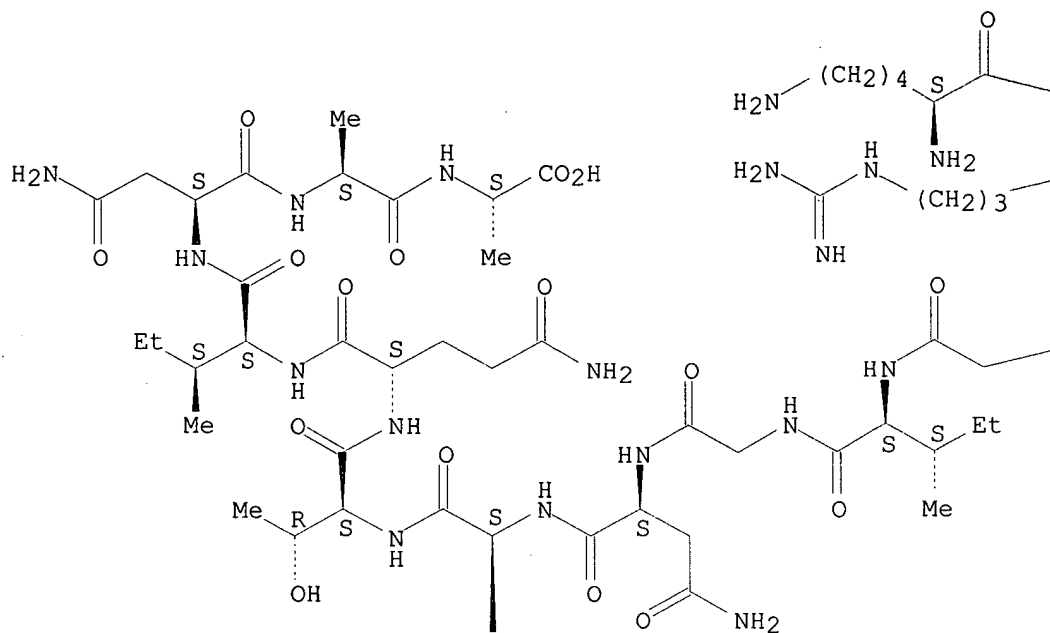


RN 132416-32-1 HCAPLUS

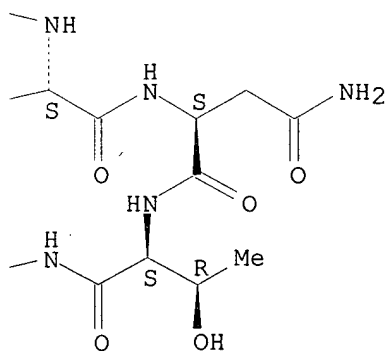
CN L-Alanine, L-lysyl-L-arginyl-L-asparaginyl-L-threonylglycyl-L-isoleucylglycyl-L-asparaginyl-L-tyrosyl-L-threonyl-L-glutamyl-L-isoleucyl-L-asparaginyl-L-alanyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

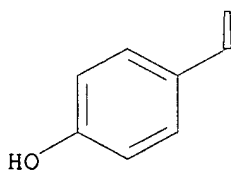
PAGE 1-A



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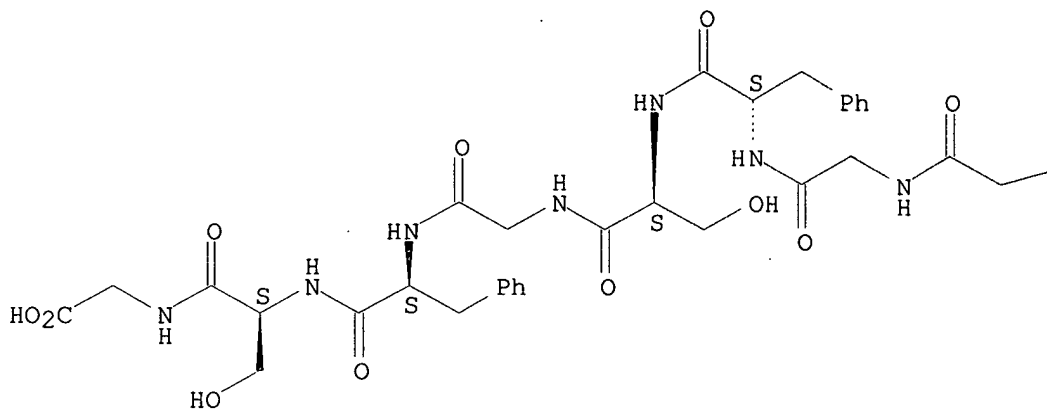


RN 132438-24-5 HCAPLUS

CN Glycine, N-[N-[N-[N-[N-(N-glycylglycyl)-L-phenylalanyl]-L-seryl]glycyl]-L-phenylalanyl]-L-seryl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

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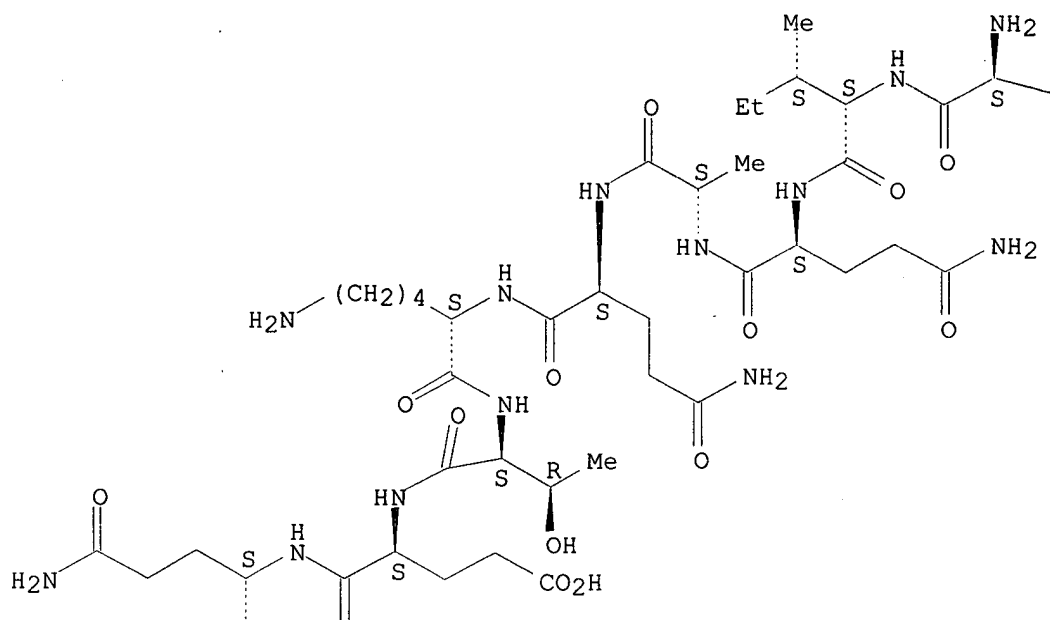
—NH<sub>2</sub>

RN 132442-55-8 HCAPLUS

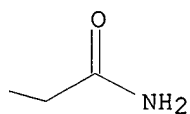
CN L-Asparagine, L-asparaginyl-L-isoleucyl-L-glutaminy-L-alanyl-L-glutaminy-L-lysyl-L-threonyl-L-.alpha.-glutamyl-L-glutaminy-L-prolyl-L-glutaminy-L-valyl-L-threonyl-L-asparaginylglycyl-L-valyl-L-glutaminyglycyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

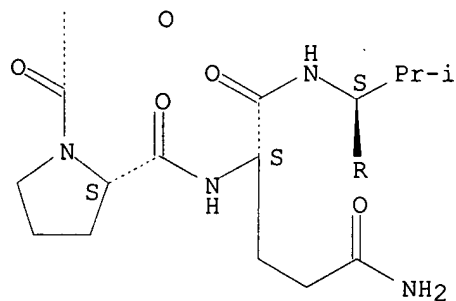
PAGE 1-A



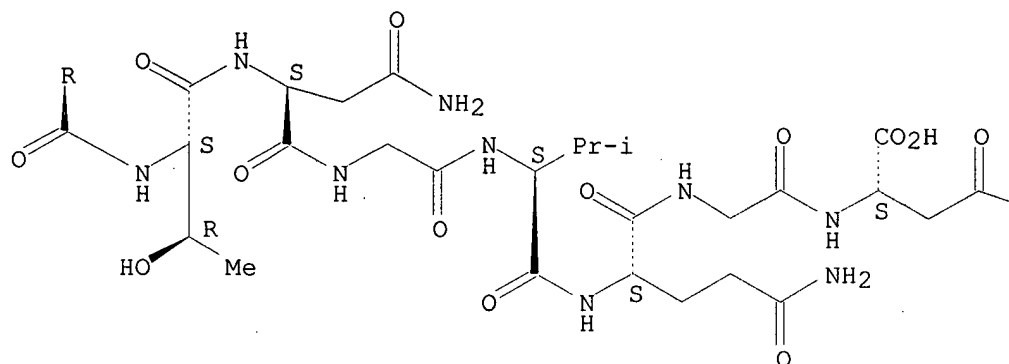
PAGE 1-B



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PAGE 3-A



PAGE 3-B

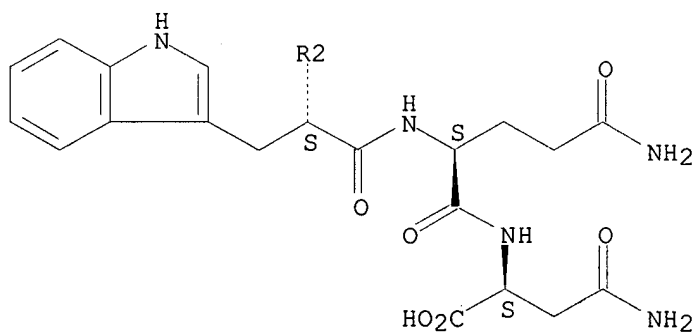
NH<sub>2</sub>

RN 132442-56-9 HCAPLUS

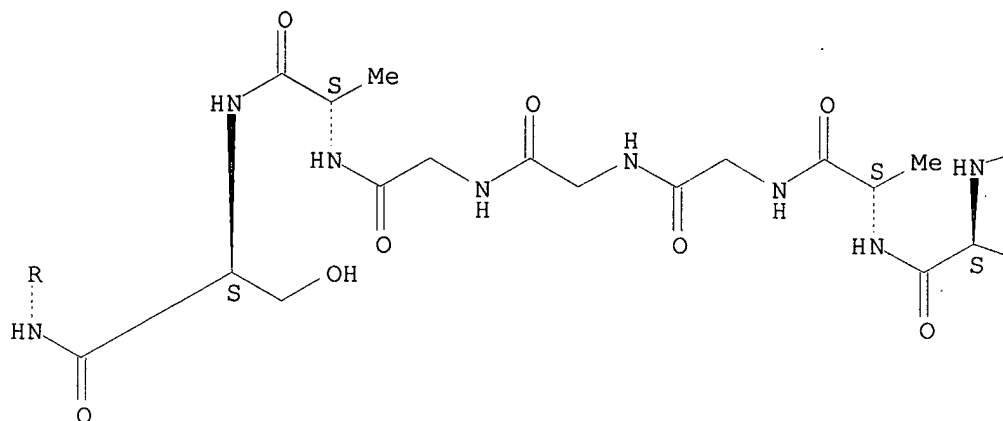
CN L-Asparagine, L-valyl-L-seryl-L-valyl-L-alanylglycylglycylglycyl-L-alanyl-L-seryl-L-glutaminyl-L-tryptophyl-L-glutaminyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

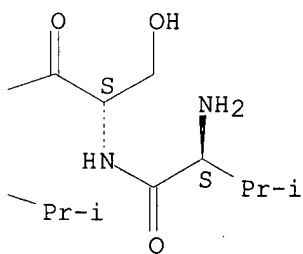
PAGE 1-A



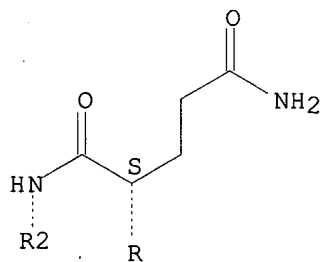
PAGE 2-A



PAGE 2-B



PAGE 3-A

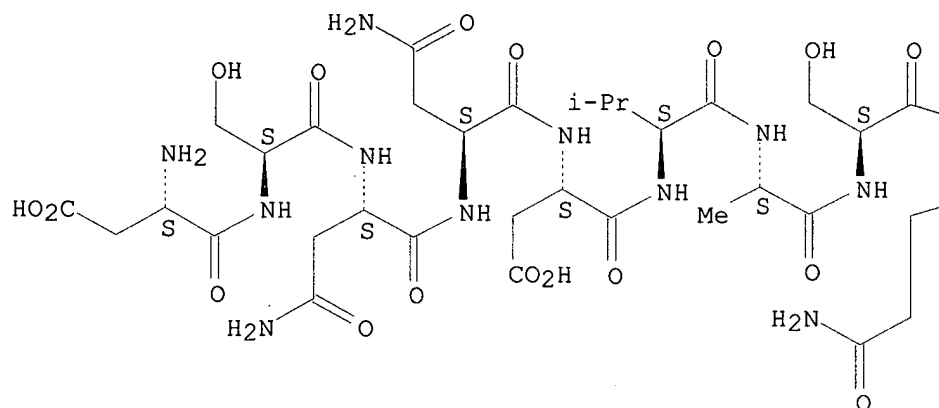


RN 132442-57-0 HCAPLUS

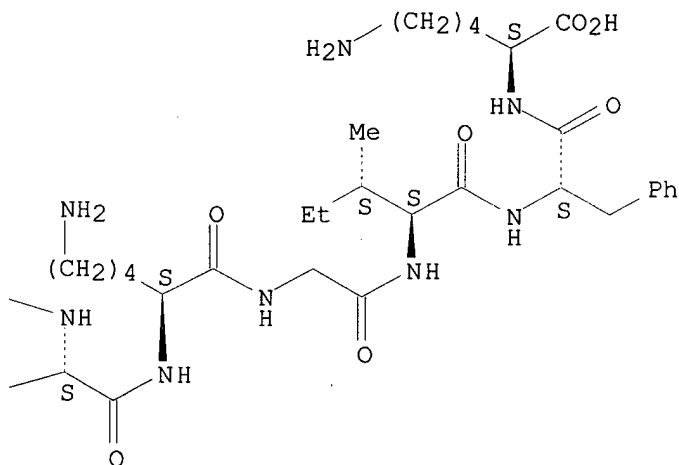
CN L-Lysine, L-.alpha.-aspartyl-L-seryl-L-asparaginyl-L-asparaginyl-L-.alpha.-  
aspartyl-L-valyl-L-alanyl-L-seryl-L-glutamyl-L-lysylglycyl-L-isoleucyl-L-  
phenylalanyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

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IT 132867-22-2, Protein OMP 1 (Neisseria meningitidis strain H355 subtype P1.15)  
 RL: BIOL (Biological study)  
 (meningococcal class 1 outer-membrane protein subtype P1.15 amino acid sequence, complete, vaccine in relation to)  
 RN 132867-22-2 HCAPLUS  
 CN Protein OMP 1 (Neisseria meningitidis strain H355 subtype P1.15) (9CI)  
 (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT 125959-45-7, Protein OMP 1 (Neisseria meningitidis clone

.lambda.A1)

RL: BIOL (Biological study)

(meningococcal class 1 outer-membrane protein subtype P1.16 amino acid sequence, complete, vaccine in relation to)

RN 125959-45-7 HCAPLUS

CN Protein OMP 1 (Neisseria meningitidis clone .lambda.A1) (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT **132866-75-2**, Protein OMP 1 (Neisseria meningitidis strain 3006 subtype P1.2)

RL: BIOL (Biological study)

(meningococcal class 1 outer-membrane protein subtype P1.2 amino acid sequence, complete, vaccine in relation to)

RN 132866-75-2 HCAPLUS

CN Protein OMP 1 (Neisseria meningitidis strain 3006 subtype P1.2) (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT **132866-74-1**, Protein OMP 1 (Neisseria meningitidis strain H44/76 subtype P1.7.16)

RL: BIOL (Biological study)

(meningococcal class 1 outer-membrane protein subtype P1.7.16 amino acid sequence, complete, vaccine in relation to)

RN 132866-74-1 HCAPLUS

CN Protein OMP 1 (Neisseria meningitidis strain H44/76 subtype P1.7.16) (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT **132442-58-1**

RL: BIOL (Biological study)

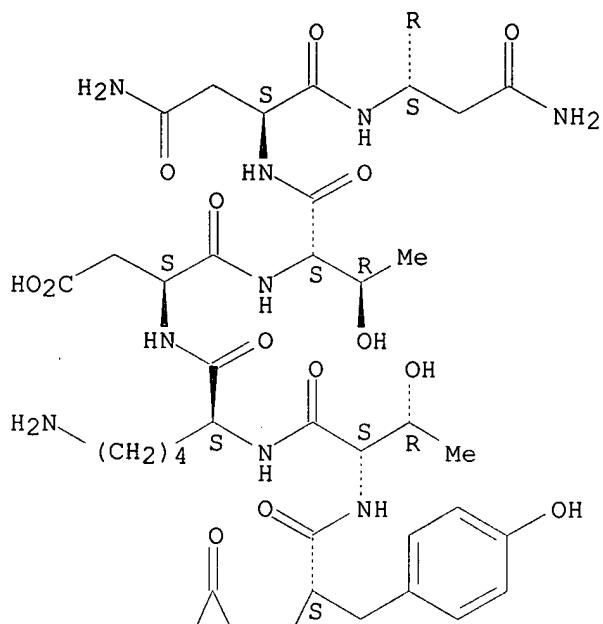
(meningococcal outer-membrane protein synthetic peptide, vaccine in relation to)

RN 132442-58-1 HCAPLUS

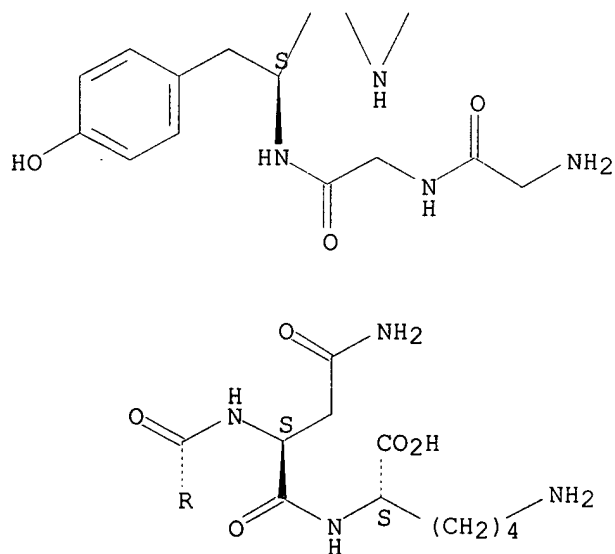
CN L-Lysine, N2-[N2-[N2-[N2-[N-[N-[N2-[N-[N-[N-(N-glycylglycyl)-L-tyrosyl]-L-tyrosyl]-L-threonyl]-L-lysyl]-L-.alpha.-aspartyl]-L-threonyl]-L-asparaginy]-L-asparaginy]-L-asparaginy]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

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IT 132416-33-2 132416-34-3 132416-35-4

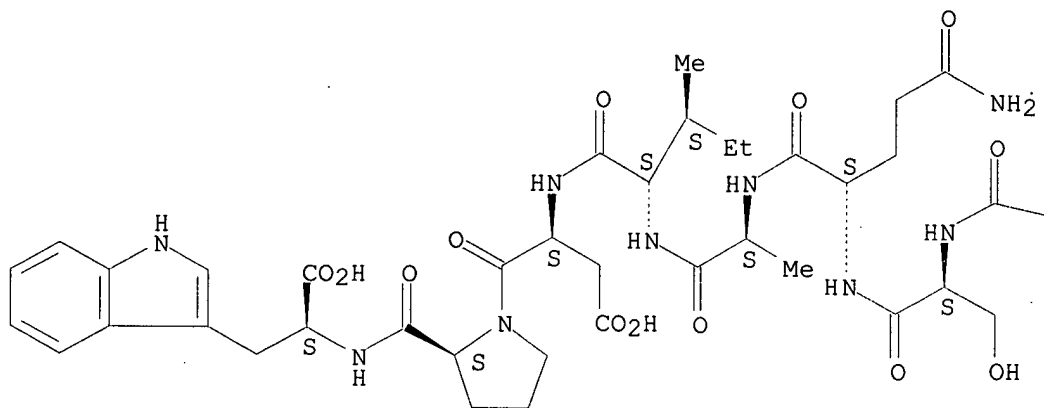
RL: BIOL (Biological study)

(meningococcal outer-membrane protein variable region-2 amino acid sequence, vaccine in relation to)

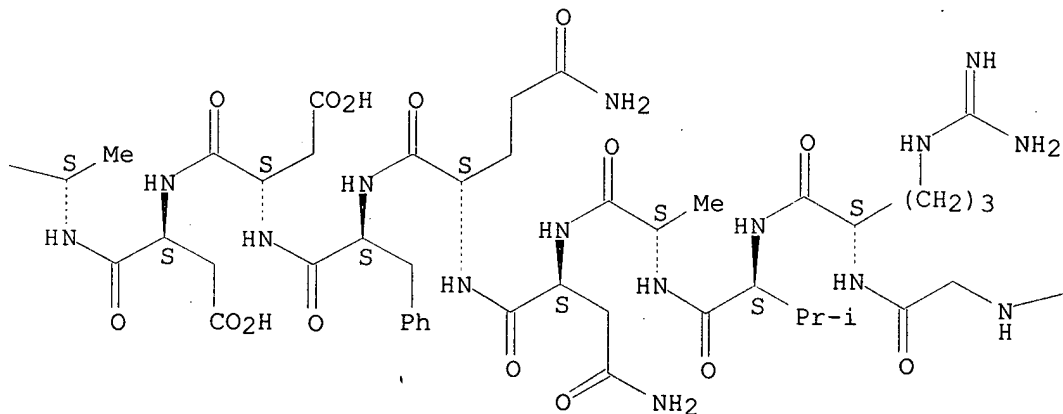
RN 132416-33-2 HCAPLUS

CN L-Tryptophan, L-threonyl-L-leucyl-L-arginyl-L-alanylglycyl-L-arginyl-L-

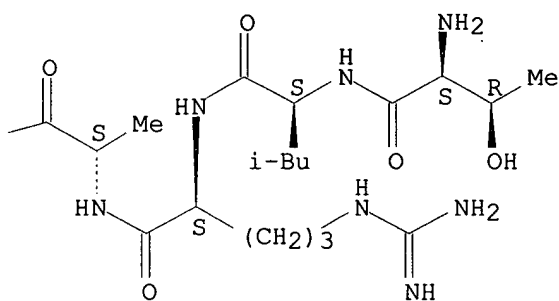
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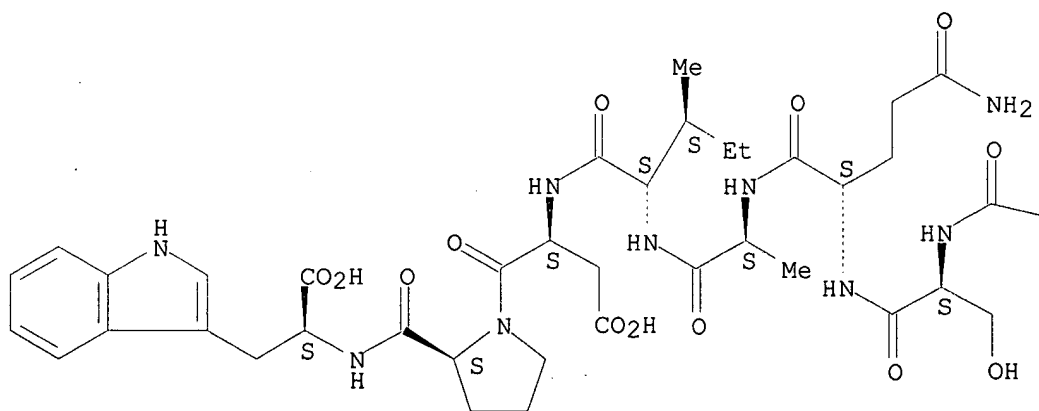




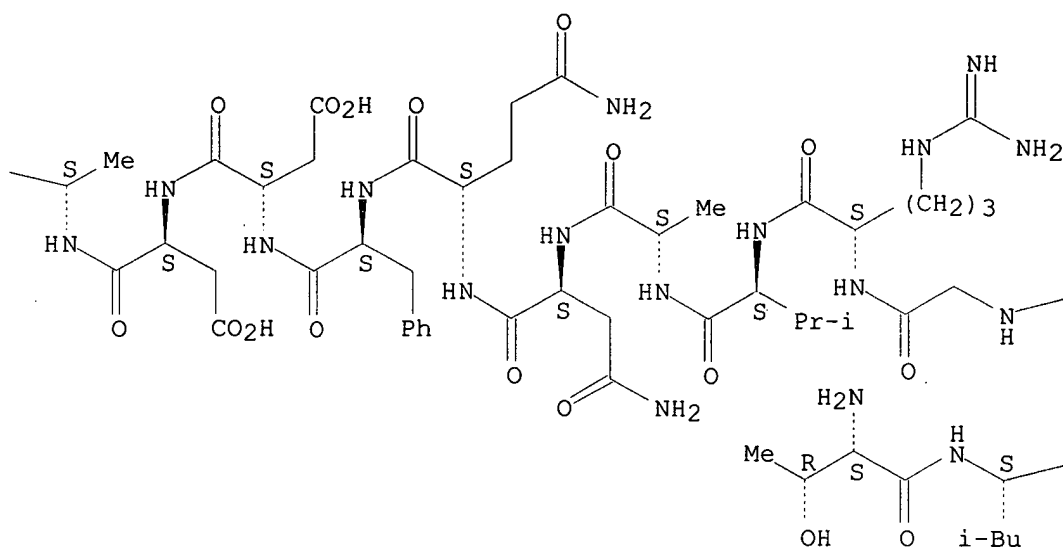
RN 132416-34-3 HCAPLUS

CN L-Tryptophan, L-threonyl-L-leucyl-L-arginyl-L-threonylglycyl-L-arginyl-L-valyl-L-alanyl-L-asparaginyl-L-glutaminyl-L-phenylalanyl-L-.alpha.-aspartyl-L-.alpha.-aspartyl-L-alanyl-L-seryl-L-glutaminyl-L-alanyl-L-isoleucyl-L-.alpha.-aspartyl-L-prolyl- (9CI) (CA INDEX NAME)

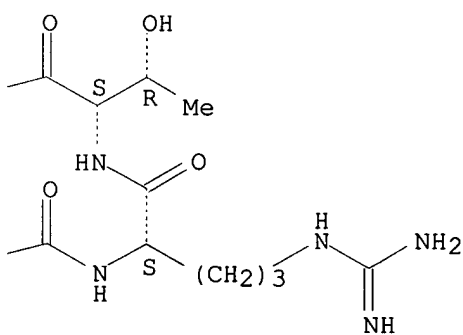
Absolute stereochemistry.



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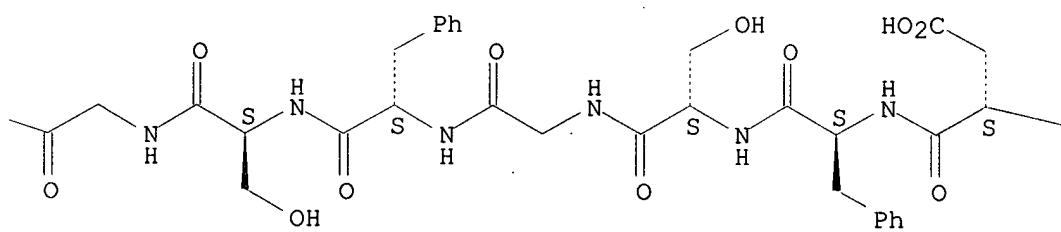
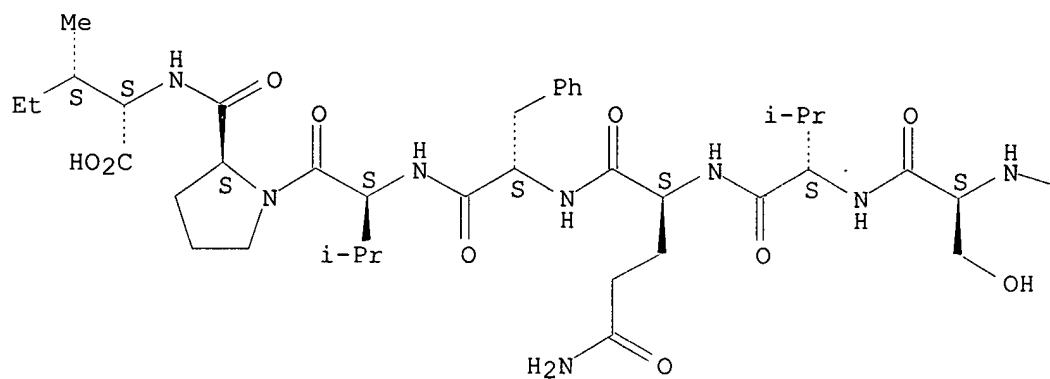


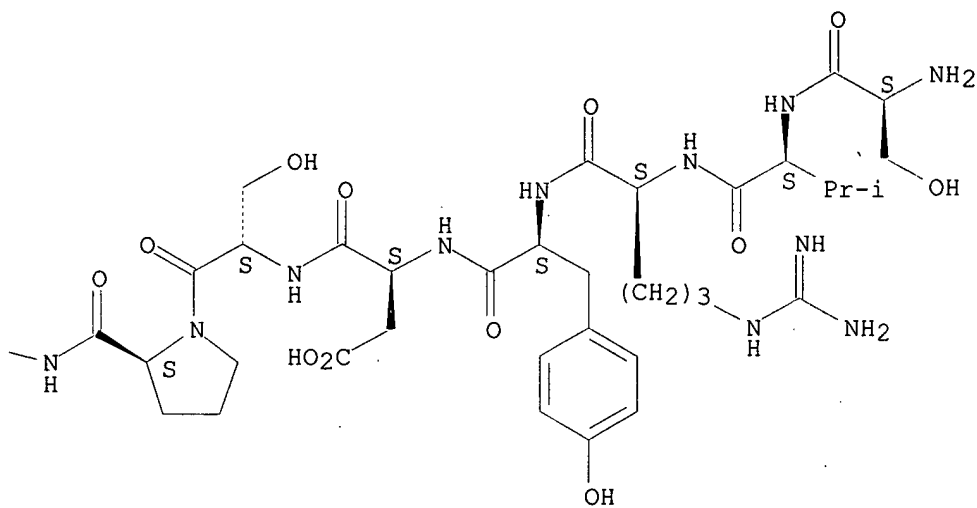
PAGE 1-C



RN 132416-35-4 HCAPLUS  
 CN L-Isoleucine, L-seryl-L-valyl-L-arginyl-L-tyrosyl-L-.alpha.-aspartyl-L-seryl-L-prolyl-L-.alpha.-aspartyl-L-phenylalanyl-L-serylglycyl-L-phenylalanyl-L-serylglycyl-L-seryl-L-valyl-L-glutaminyl-L-phenylalanyl-L-valyl-L-prolyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.





IT 132416-09-2 132416-10-5 132416-11-6  
 132416-12-7 132416-13-8 132416-14-9  
 132416-15-0 132416-16-1 132416-17-2  
 132416-18-3 132416-19-4 132416-20-7  
 132442-54-7

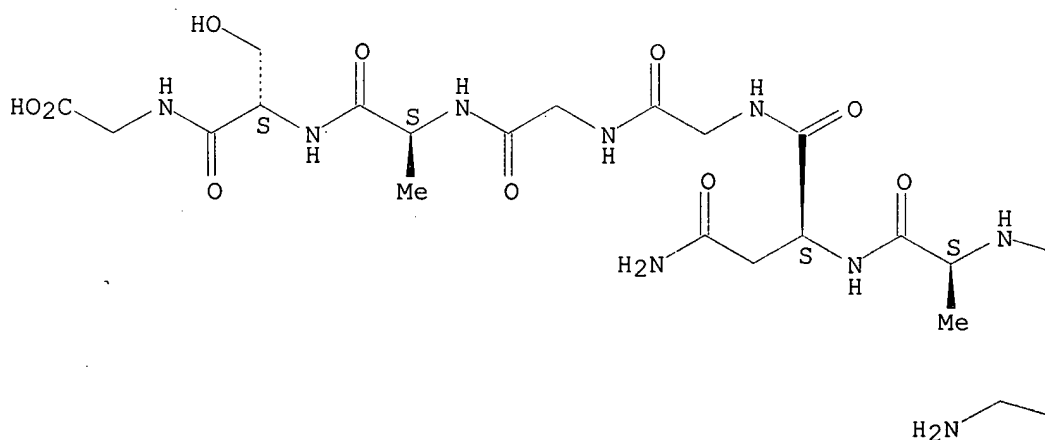
RL: PRP (Properties)

(peptide contg. sequence of, conjugated to tetanus toxoid, for vaccine  
 against meningococcal infection)

RN 132416-09-2 HCAPLUS

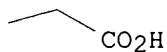
CN Glycine, N-[N-[N-[N-[N-[N2-[N-[N-[N2-[N-(N-glycylglycyl)-L-alanyl]-L-  
 glutaminy]-L-alanyl]-L-alanyl]-L-asparaginy]-glycyl]-glycyl]-L-alanyl]-L-  
 seryl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

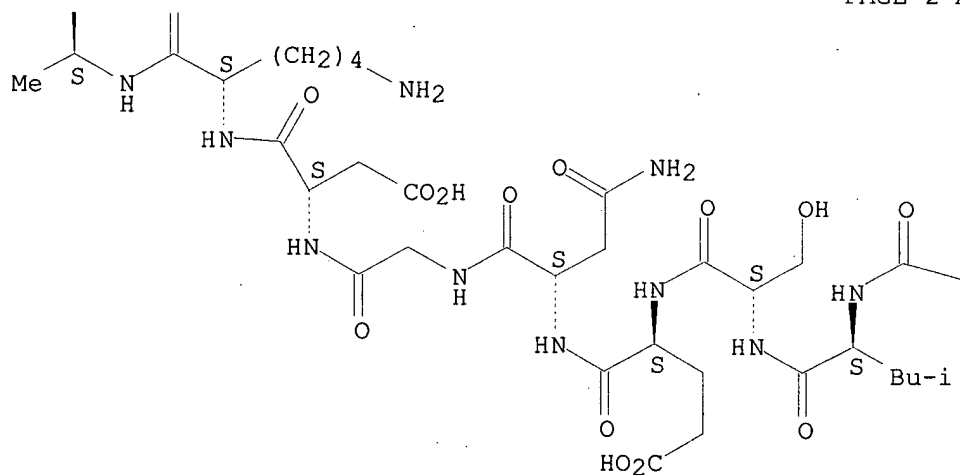




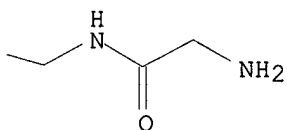
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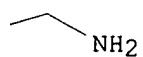
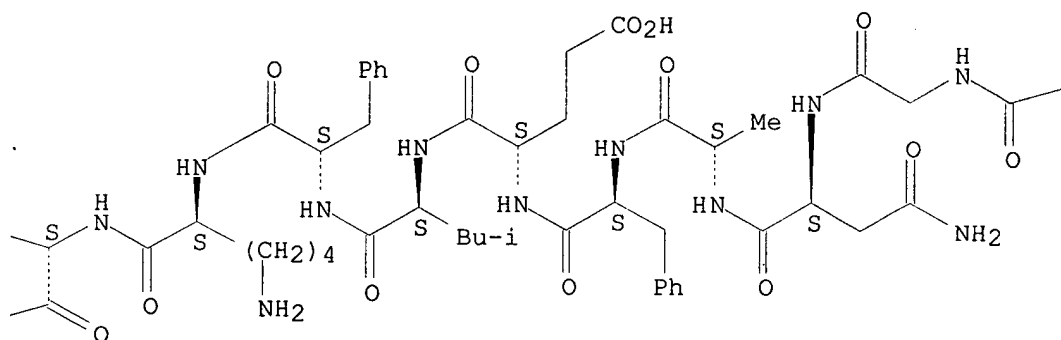
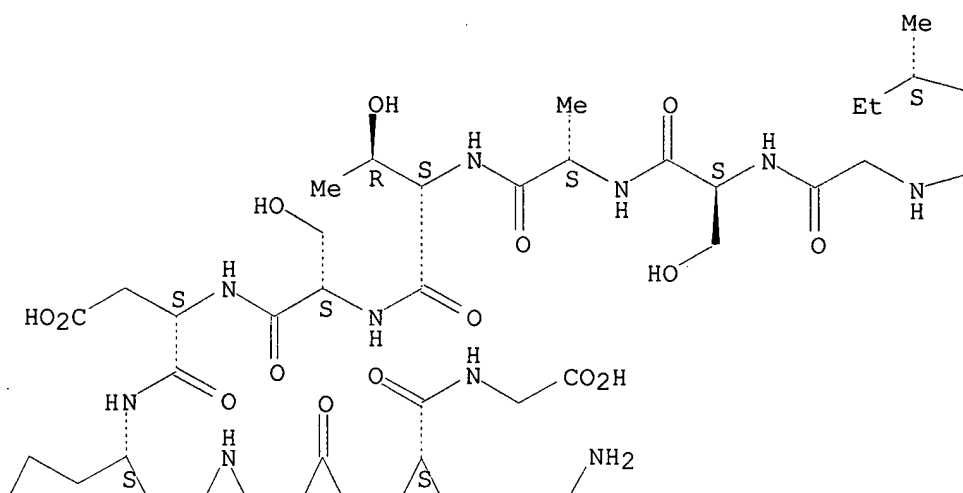
PAGE 2-B



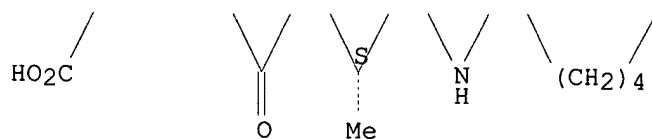
RN 132416-11-6 HCAPLUS

CN Glycine, glycyglycyl-L-asparaginyl-L-alanyl-L-phenylalanyl-L-.alpha.-  
glutamyl-L-leucyl-L-phenylalanyl-L-lysyl-L-isoleucylglycyl-L-seryl-L-  
alanyl-L-threonyl-L-seryl-L-.alpha.-aspartyl-L-.alpha.-glutamyl-L-alanyl-L-  
lysyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



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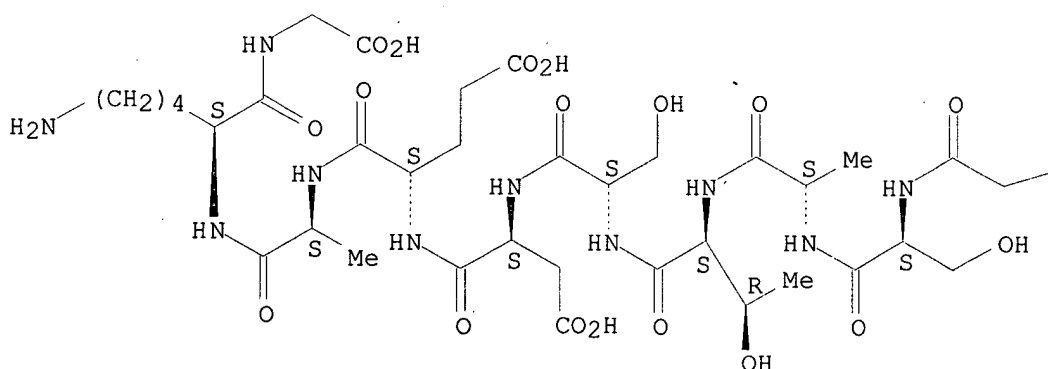


RN 132416-12-7 HCAPLUS

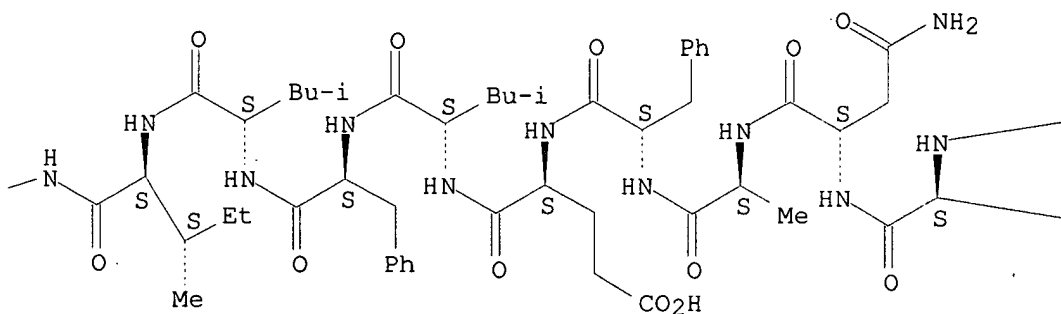
CN Glycine, L-alanyl-L-asparaginyl-L-valylglycyl-L-arginyl-L-asparaginyl-L-alanyl-L-phenylalanyl-L-.alpha.-glutamyl-L-leucyl-L-phenylalanyl-L-leucyl-L-isoleucylglycyl-L-seryl-L-alanyl-L-threonyl-L-seryl-L-.alpha.-aspartyl-L-.alpha.-glutamyl-L-alanyl-L-lysyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

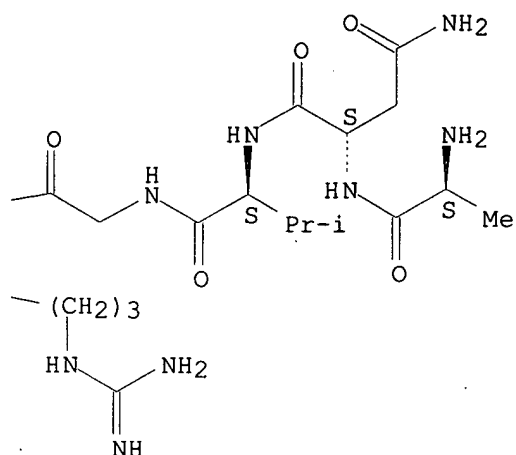
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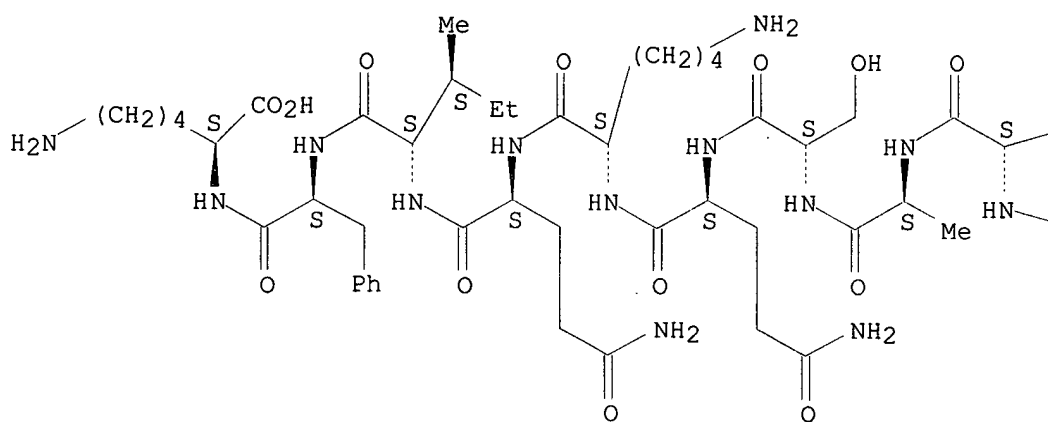




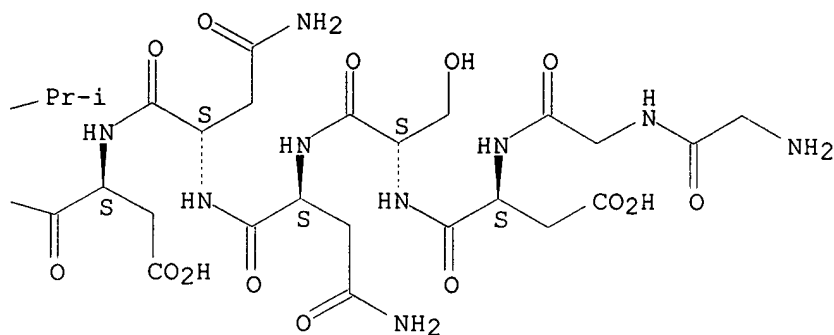
RN 132416-13-8 HCAPLUS

CN L-Lysine, glycyglycyl-L-.alpha.-aspartyl-L-seryl-L-asparaginyl-L-asparaginyl-L-.alpha.-aspartyl-L-valyl-L-alanyl-L-seryl-L-glutaminyll-L-lysyl-L-glutaminyll-L-isoleucyl-L-phenylalanyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



PAGE 1-B

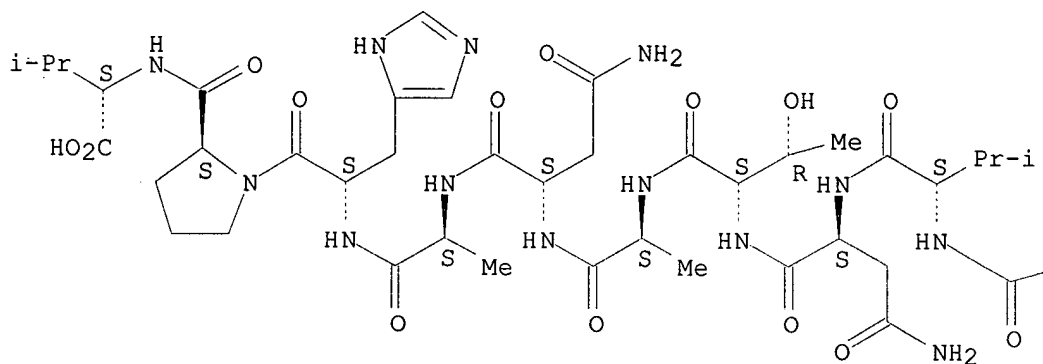


RN 132416-14-9 HCAPLUS

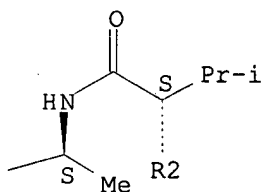
CN L-Valine, L-alanyl-L-.alpha.-aspartyl-L-lysyl-L-asparaginyl-L-threonyl-L-.alpha.-aspartyl-L-alanyl-L-.alpha.-glutamyl-L-arginyl-L-valyl-L-alanyl-L-valyl-L-asparaginyl-L-threonyl-L-alanyl-L-asparaginyl-L-alanyl-L-histidyl-L-prolyl- (9CI) (CA INDEX NAME)

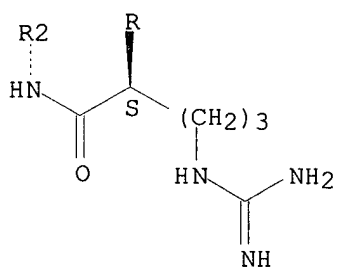
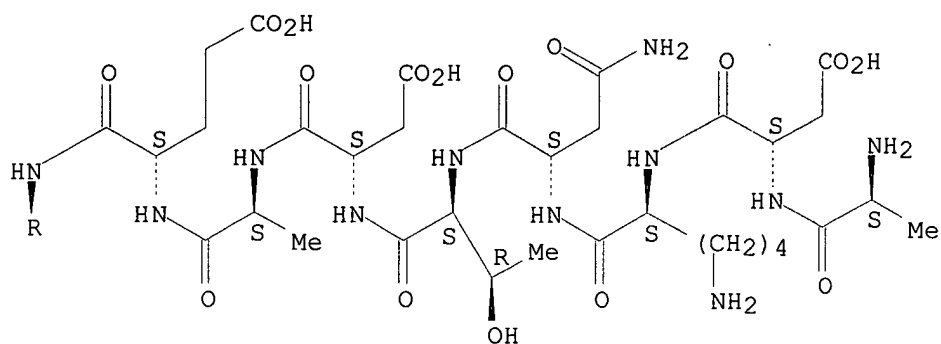
Absolute stereochemistry.

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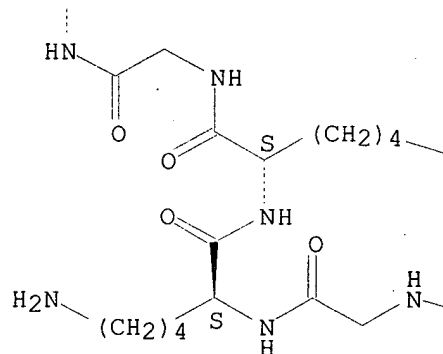
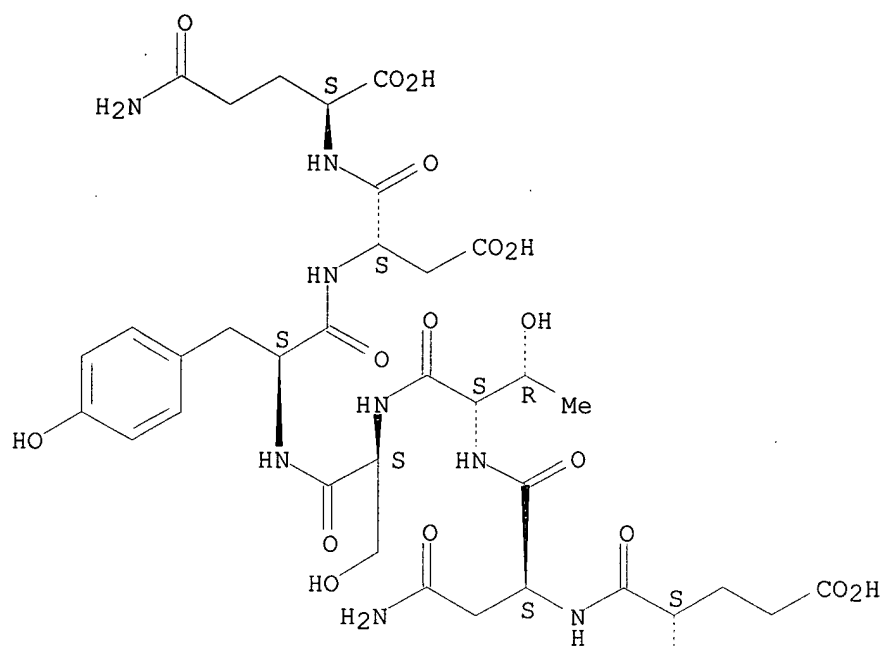


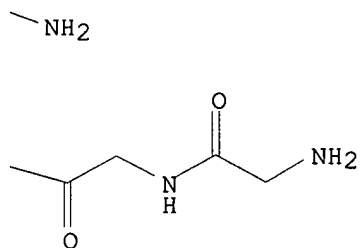


RN 132416-15-0 HCAPLUS

CN L-Glutamine, glycyglycyglycyl-L-lysyl-L-lysylglycyl-L-.alpha.-glutamyl-L-asparaginy-L-threonyl-L-seryl-L-tyrosyl-L-.alpha.-aspartyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

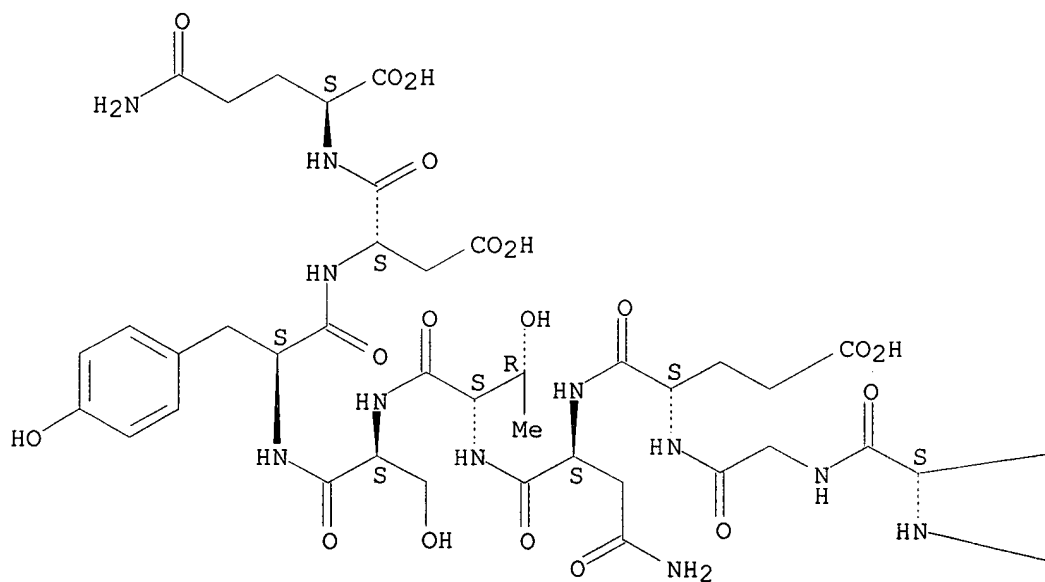




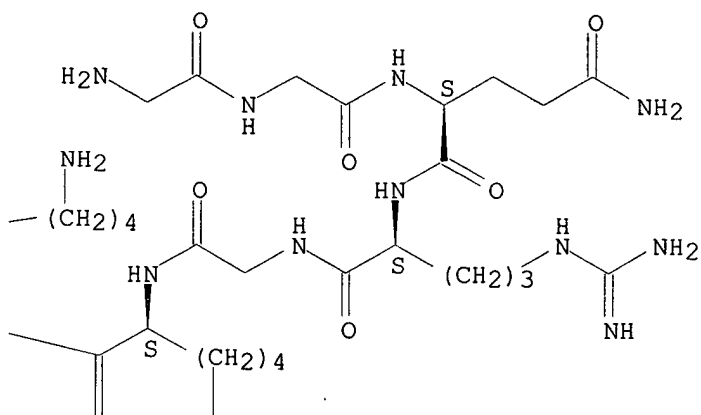
RN 132416-16-1 HCAPLUS

CN L-Glutamine, glycylglycyl-L-glutaminyl-L-arginylglycyl-L-lysyl-L-lysylglycyl-L-.alpha.-glutamyl-L-asparaginyl-L-threonyl-L-seryl-L-tyrosyl-L-.alpha.-aspartyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



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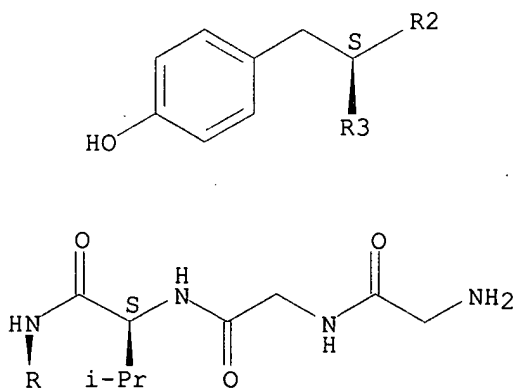
PAGE 2-B



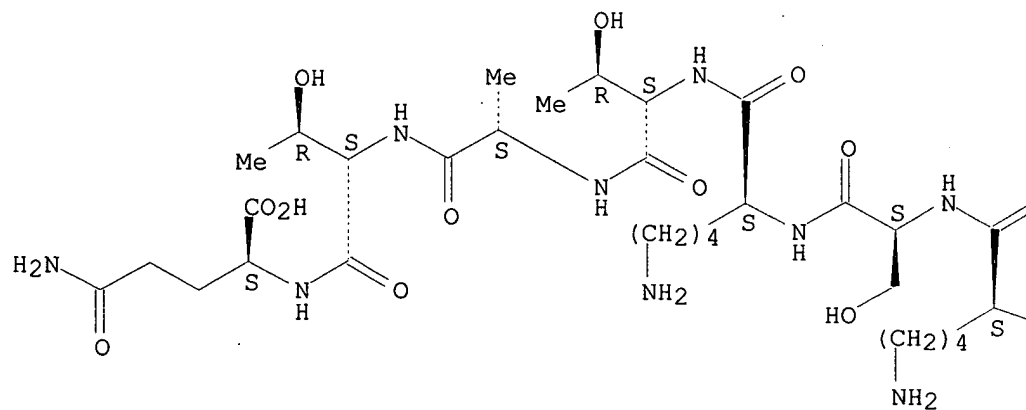
RN 132416-17-2 HCAPLUS  
 CN L-Glutamine, glycyglycyl-L-valyl-L-lysyl-L-.alpha.-aspartyl-L-alanylglycyl-L-threonyl-L-tyrosyl-L-lysyl-L-alanyl-L-glutaminyglycylglycyl-L-lysyl-L-seryl-L-lysyl-L-threonyl-L-alanyl-L-threonyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

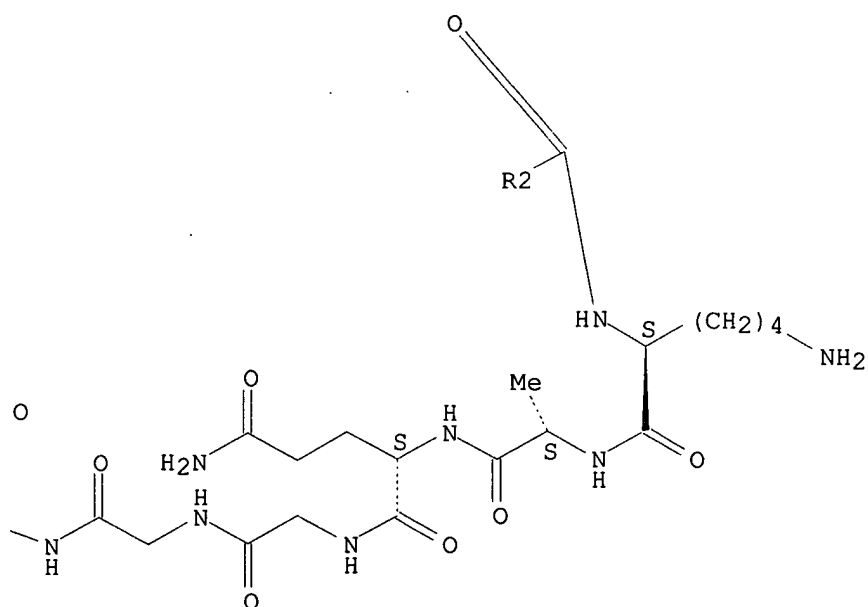
PAGE 1-A



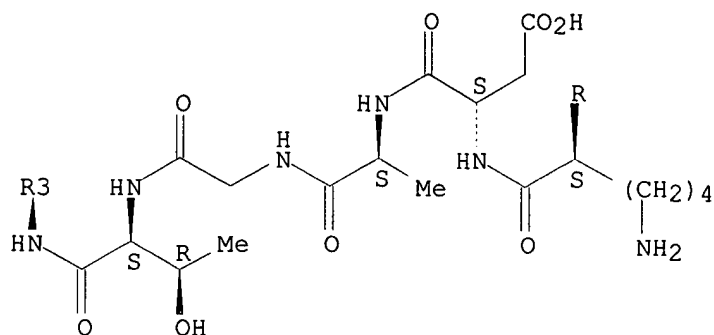
PAGE 2-A



PAGE 2-B



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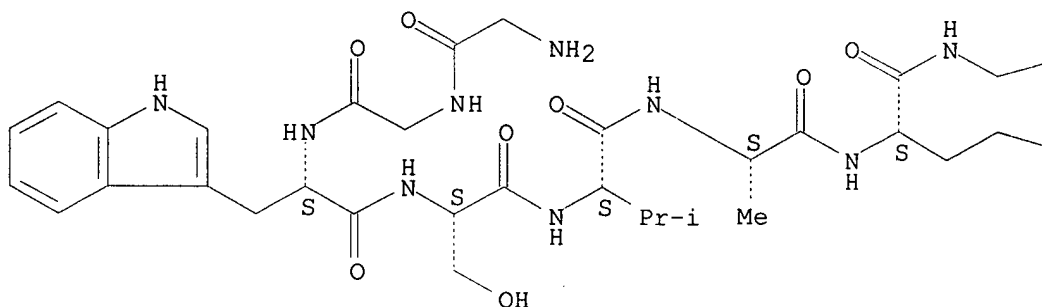


RN 132416-18-3 HCAPLUS

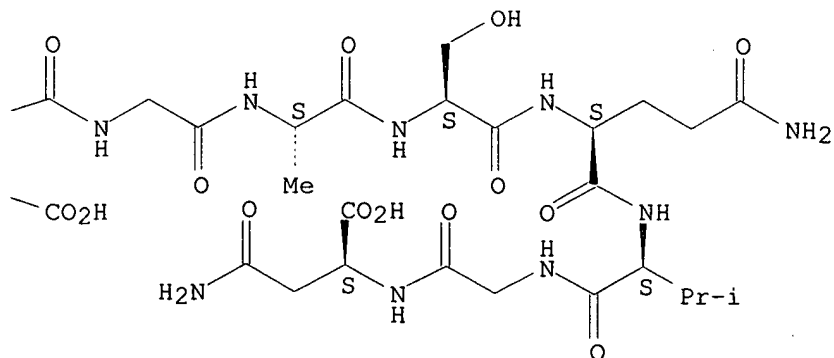
CN L-Asparagine, glycylglycyl-L-tryptophyl-L-seryl-L-valyl-L-alanyl-L-.alpha.-  
glutamylglycylglycyl-L-alanyl-L-seryl-L-glutamyl-L-valylglycyl- (9CI)  
(CA INDEX NAME)

Absolute stereochemistry.

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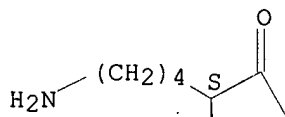
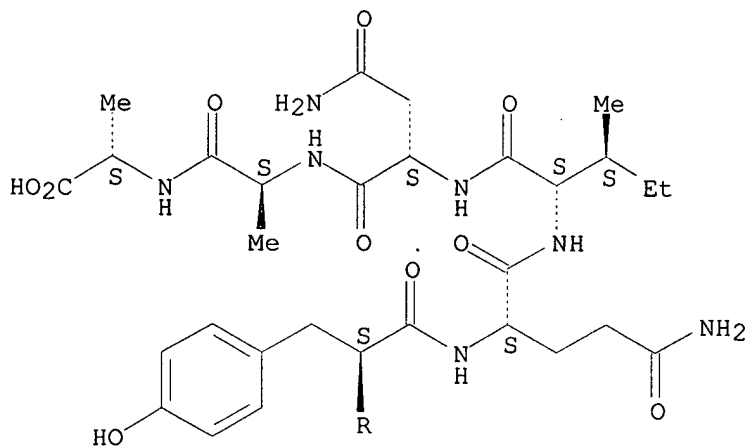
RN 132416-19-4 HCAPLUS



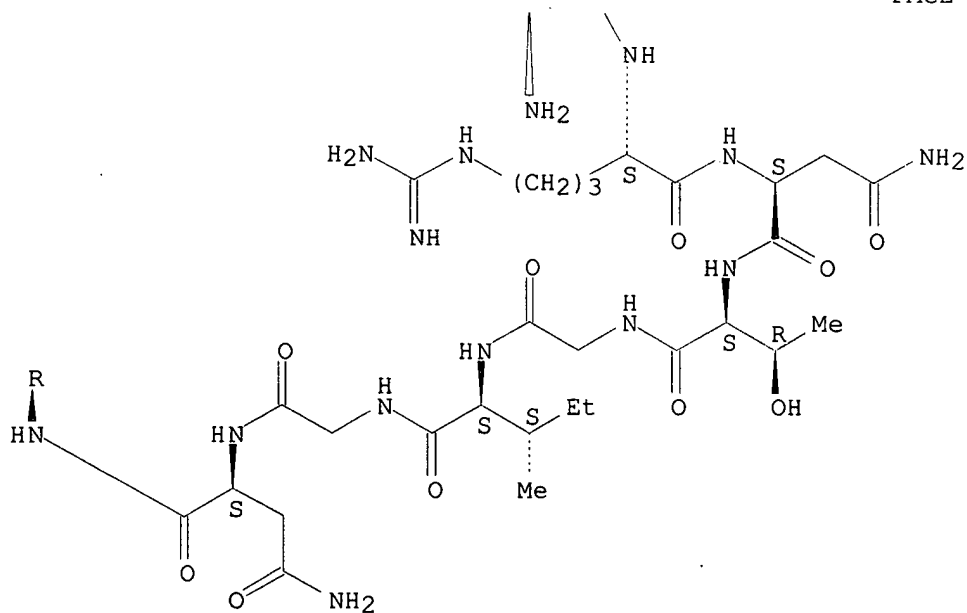
CN L-Alanine, L-lysyl-L-arginyl-L-asparaginyl-L-threonylglycyl-L-isoleucylglycyl-L-asparaginyl-L-tyrosyl-L-glutamyl-L-isoleucyl-L-asparaginyl-L-alanyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

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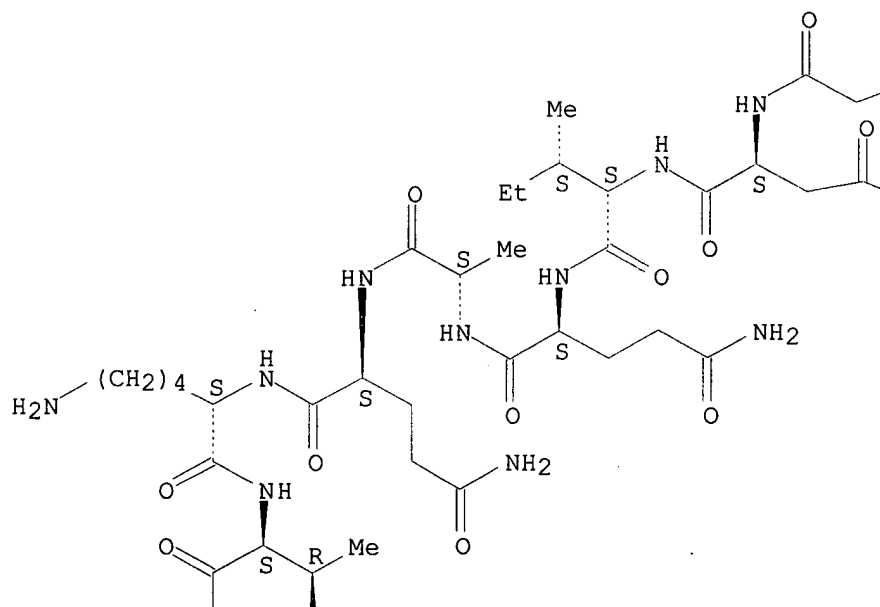


RN 132416-20-7 HCAPLUS

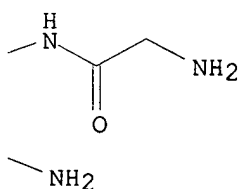
CN L-Asparagine, glycylglycyl-L-asparaginyl-L-isoleucyl-L-glutaminy-L-alanyl-L-glutaminy-L-lysyl-L-threonyl-L-.alpha.-glutamyl-L-glutaminy-L-prolyl-L-glutaminy-L-valyl-L-threonyl-L-asparaginylglycyl-L-valyl-L-glutaminyglycyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

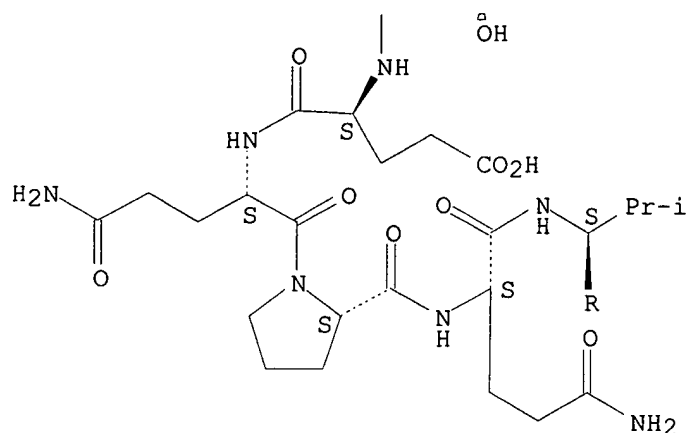
PAGE 1-A



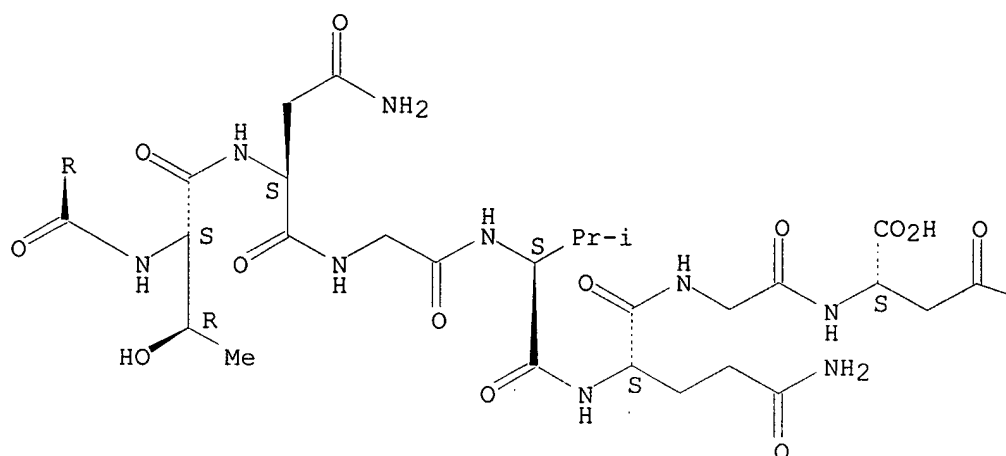
PAGE 1-B



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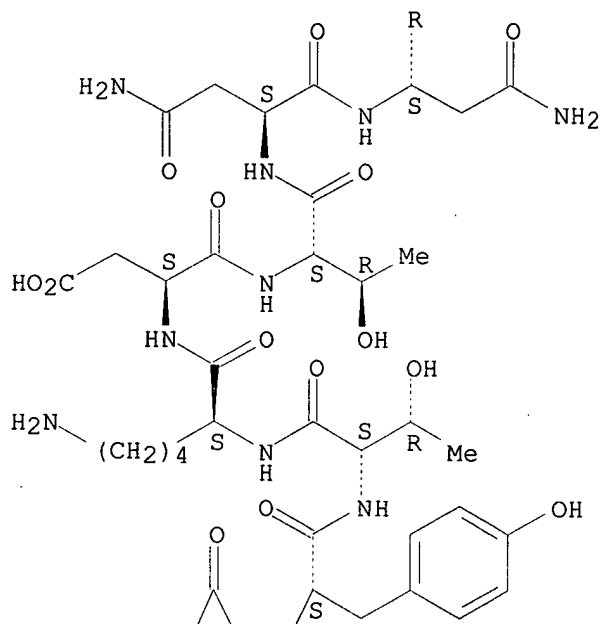
$\text{NH}_2$

RN 132442-54-7 HCAPLUS  
 CN L-Leucine, N-[N2-[N2-[N2-[N-[N-[N2-[N-[N-[N-(N-glycylglycyl)-L-tyrosyl]-L-

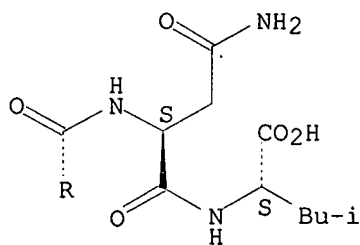
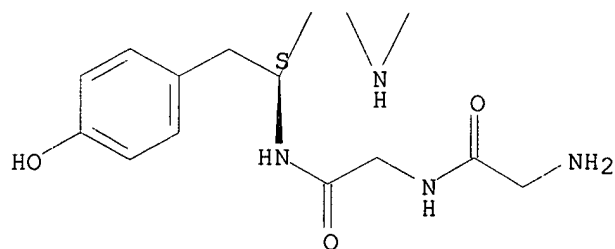
tyrosyl]-L-threonyl]-L-lysyl]-L-.alpha.-aspartyl]-L-threonyl]-L-asparaginyl]-L-asparaginyl]-L-asparaginyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

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IT 132415-76-0 132415-77-1 132415-78-2  
132415-79-3 132415-80-6 132415-83-9

132415-84-0 132442-48-9 132442-49-0

RL: PRP (Properties)

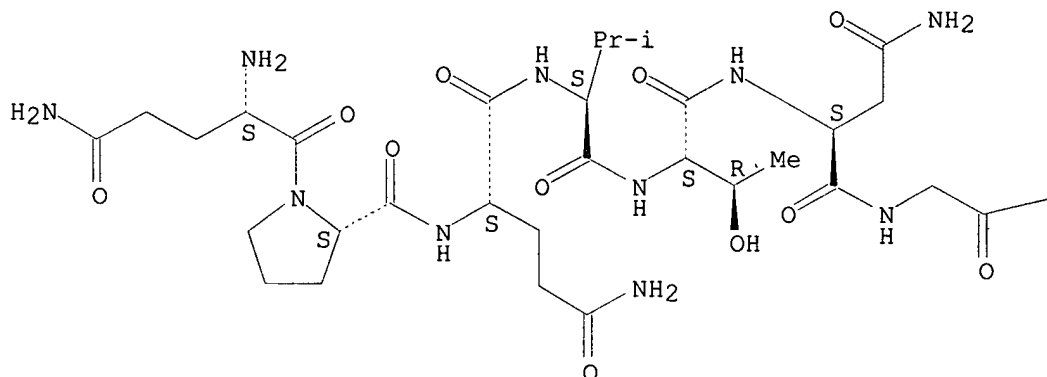
(peptide contg. sequence of, for vaccine against meningococcal infection)

RN 132415-76-0 HCAPLUS

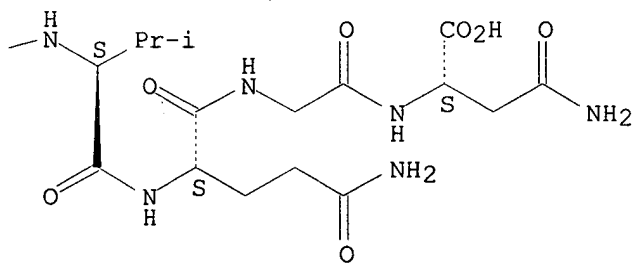
CN L-Asparagine, N2-[N-[N2-[N-[N-[N2-[N-[N-[N2-(1-L-glutaminy]L-prolyl)-L-glutaminy]L-valyl]-L-threonyl]-L-asparaginy]glycyl]-L-valyl]-L-glutaminy]glycyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

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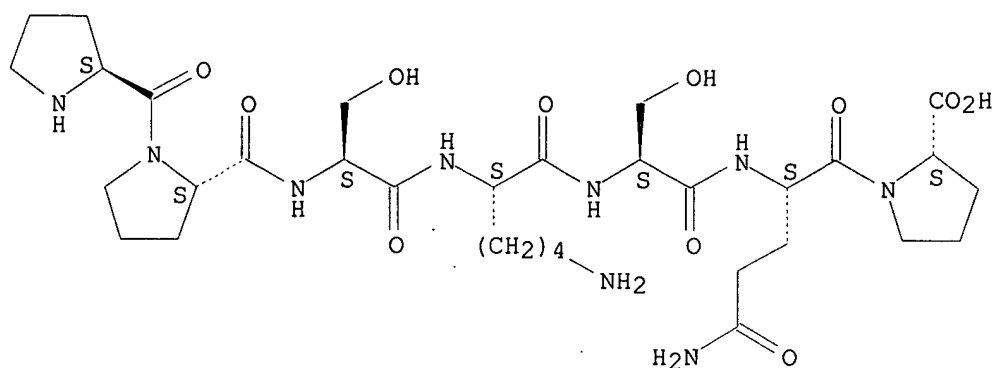
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RN 132415-77-1 HCAPLUS

CN L-Proline, 1-[N2-[N-[N2-[N-(1-L-prolyl-L-prolyl)-L-seryl]-L-lysyl]-L-seryl]-L-glutaminy]- (9CI) (CA INDEX NAME)

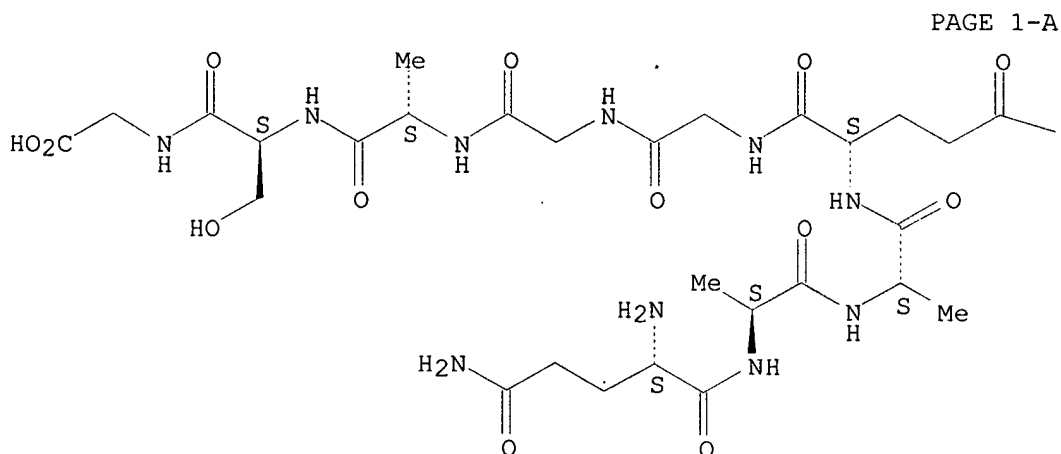
Absolute stereochemistry.



RN 132415-78-2 HCAPLUS

CN Glycine, N-[N-[N-[N-[N-[N2-[N-(N-L-glutaminy-L-alanyl)-L-alanyl]-L-glutaminy]glycyl]glycyl]-L-alanyl]-L-seryl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



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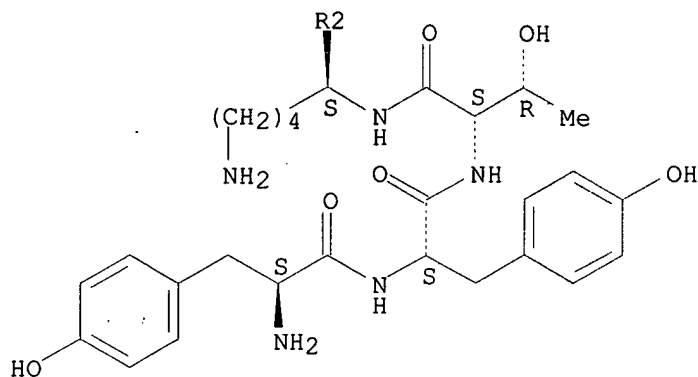
—NH<sub>2</sub>

RN 132415-79-3 HCAPLUS

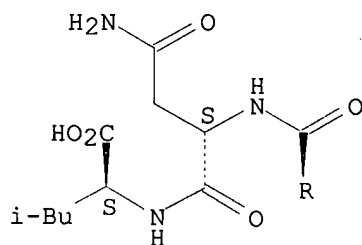
CN L-Leucine, L-tyrosyl-L-tyrosyl-L-threonyl-L-lysyl-L-.alpha.-aspartyl-L-threonyl-L-asparaginy-L-asparaginy-L-asparaginy- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

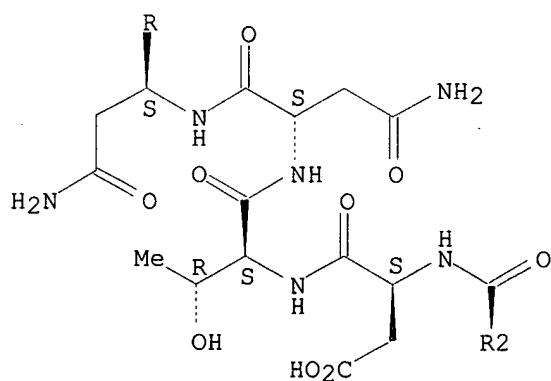
PAGE 1-A



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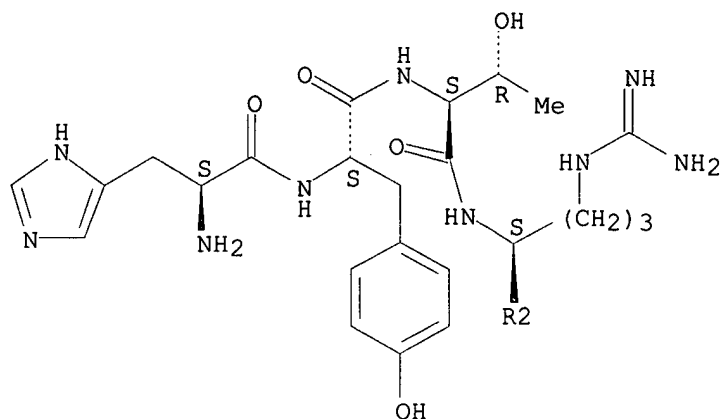


RN 132415-80-6 HCAPLUS

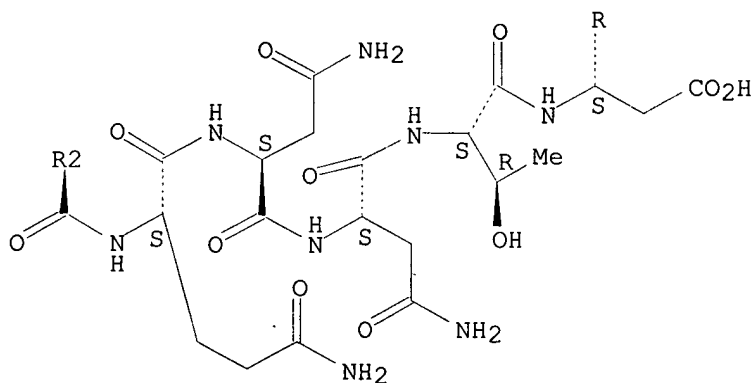
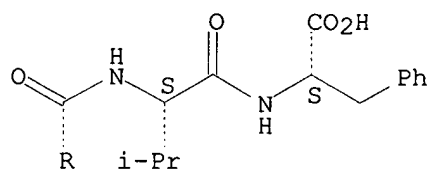
CN L-Phenylalanine, N-[N-[N-[N-[N2-[N2-[N2-[N2-[N-(N-L-histidyl-L-tyrosyl)-L-threonyl]-L-arginyl]-L-glutaminyl]-L-asparaginyl]-L-asparaginyl]-L-threonyl]-L-.alpha.-aspartyl]-L-valyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

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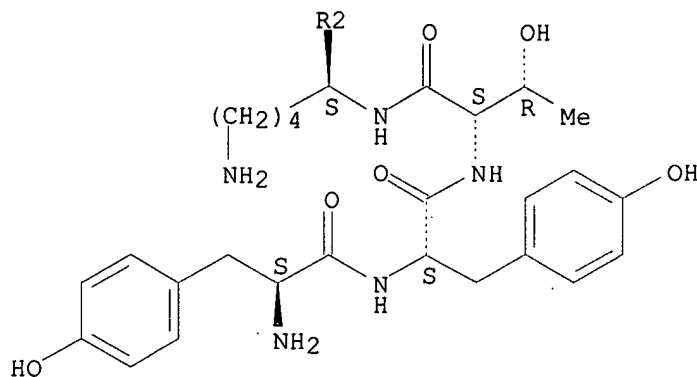
RN 132415-83-9 HCAPLUS

CN L-Leucine, N-[N2-[N2-[N2-[N-[N2-[N2-[N-(N-L-tyrosyl-L-tyrosyl)-L-threonyl]-L-lysyl]-L-asparaginyl]-L-threonyl]-L-asparaginyl]-L-asparaginyl]-L-asparaginyl]- (9CI) (CA INDEX NAME)

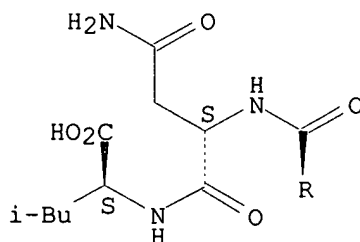
Absolute stereochemistry.



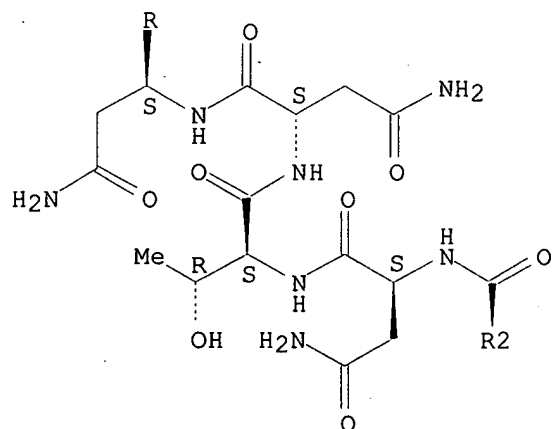
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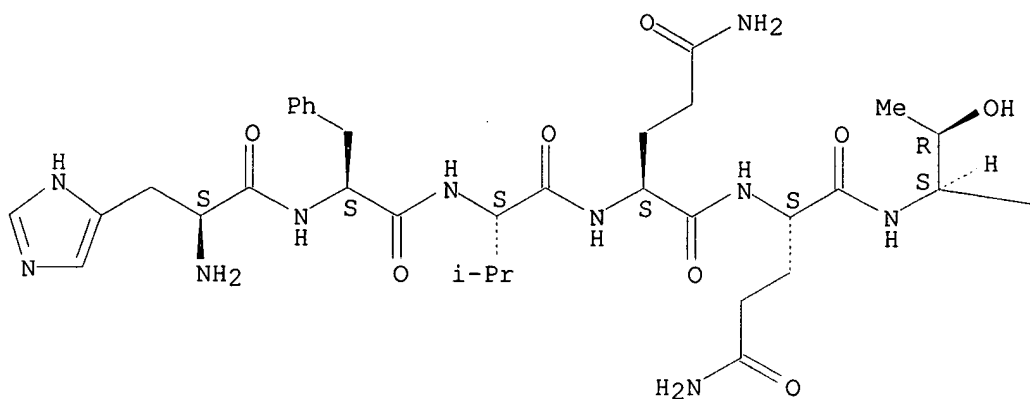
PAGE 3-A



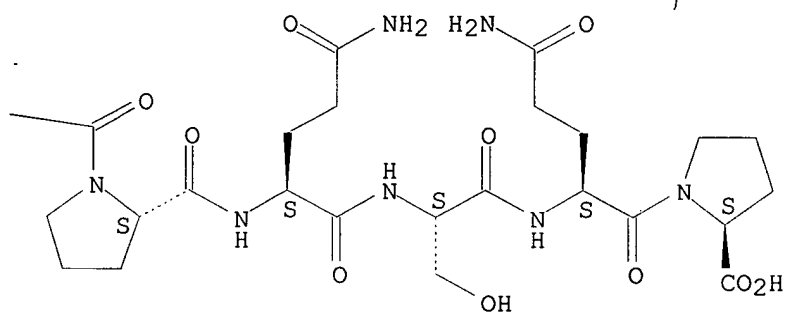
RN 132415-84-0 HCAPLUS  
 CN L-Proline, 1-[N2-[N-[N2-[1-[N-[N2-[N2-[N-(N-L-histidyl-L-phenylalanyl)-L-valyl]-L-glutaminy]-L-glutaminy]-L-threonyl]-L-prolyl]-L-glutaminy]-L-seryl]-L-glutaminy]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

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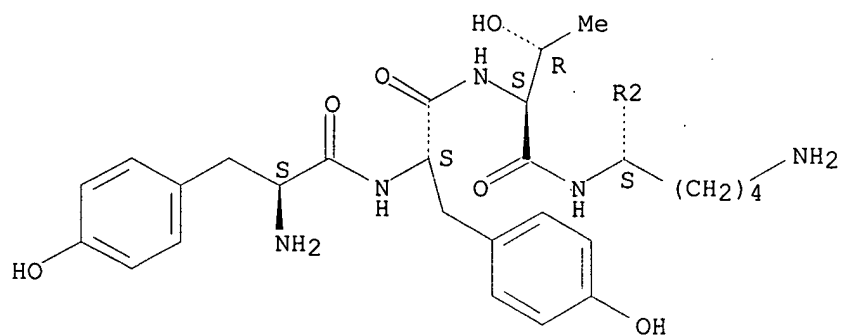


RN 132442-48-9 HCAPLUS

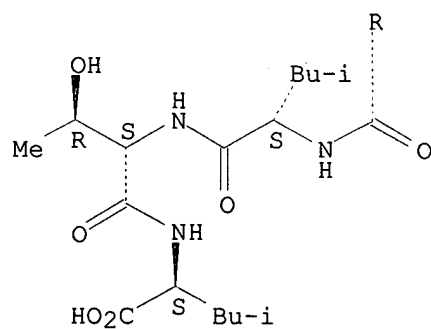
CN L-Leucine, N-[N-[N-[N2-[N2-[N2-[N-[N-[N2-[N-(N-L-tyrosyl-L-tyrosyl)-L-threonyl]-L-lysyl]-L-.alpha.-aspartyl]-L-threonyl]-L-asparaginyl]-L-asparaginyl]-L-asparaginyl]-L-leucyl]-L-threonyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

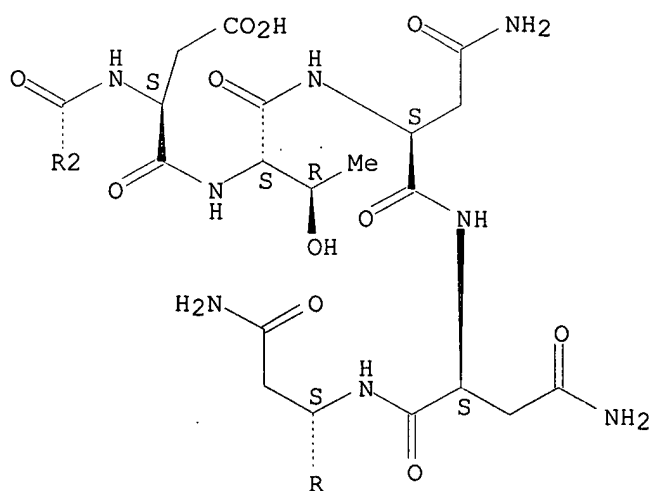
PAGE 1-A



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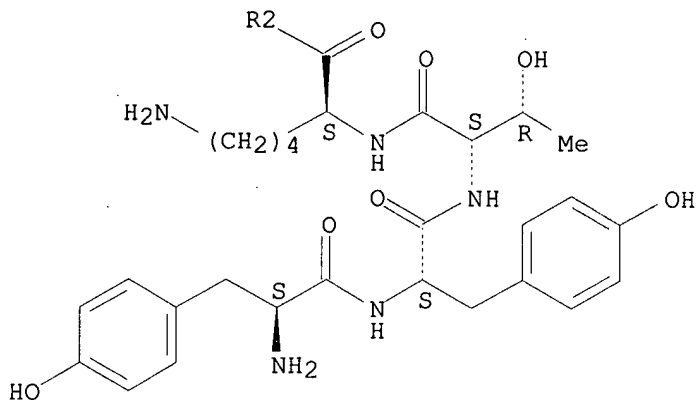


RN 132442-49-0 HCAPLUS  
 CN L-Lysine, N2-[N-[N-[N2-[N2-[N2-[N-[N2-[N2-[N-(N-L-tyrosyl-L-tyrosyl)-L-

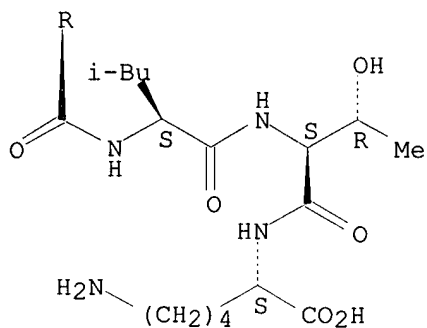
threonyl]-L-lysyl]-L-asparaginyl]-L-threonyl]-L-asparaginyl]-L-asparaginyl]-L-asparaginyl]-L-leucyl]-L-threonyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

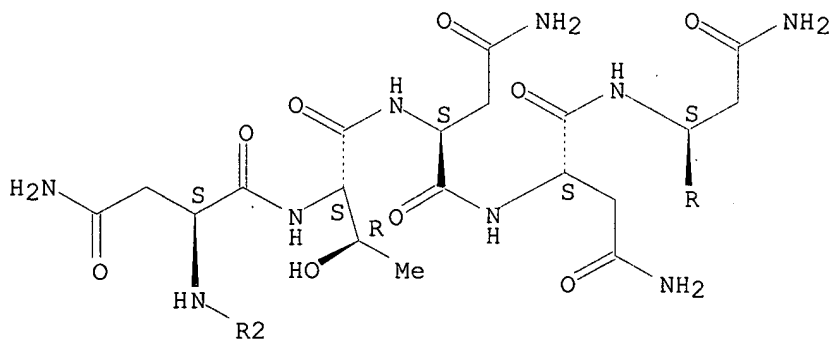
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IT 132415-79-3 132415-88-4 132415-89-5  
 132415-90-8 132415-91-9 132415-92-0  
 132415-93-1 132415-94-2 132415-95-3  
 132415-96-4 132415-97-5 132415-98-6  
 132415-99-7 132416-00-3 132416-01-4  
 132416-02-5 132416-03-6 132416-04-7  
 132416-05-8 132416-06-9 132416-07-0  
 132416-08-1 132442-47-8 132442-53-6

RL: BIOL (Biological study)

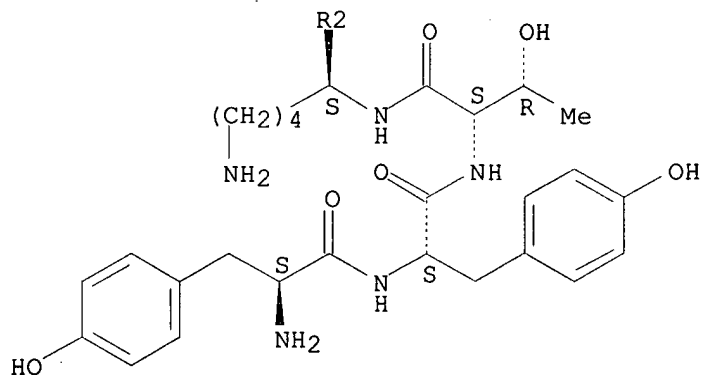
(peptide in meningococcal class 1 outer-membrane protein epitope  
 identification for vaccine)

RN 132415-79-3 HCAPLUS

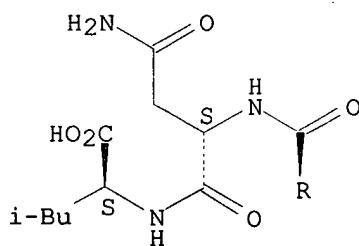
CN L-Leucine, L-tyrosyl-L-tyrosyl-L-threonyl-L-lysyl-L-.alpha.-aspartyl-L-  
 threonyl-L-asparaginyl-L-asparaginyl-L-asparaginyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

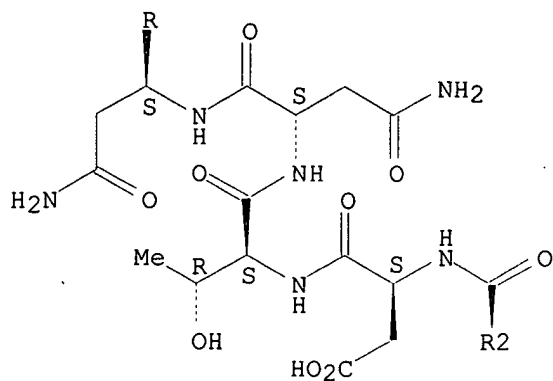
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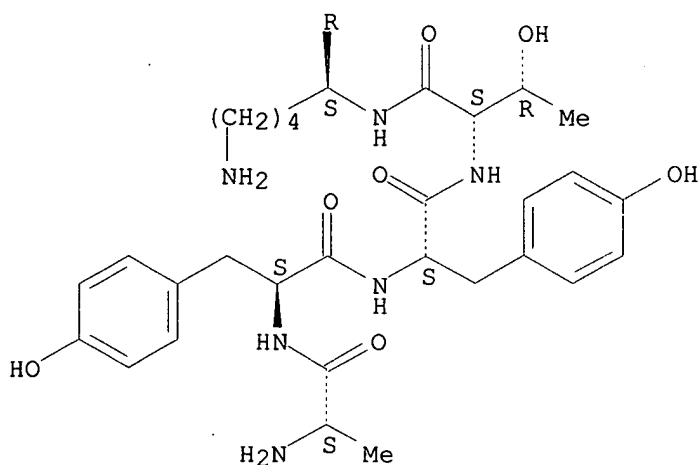


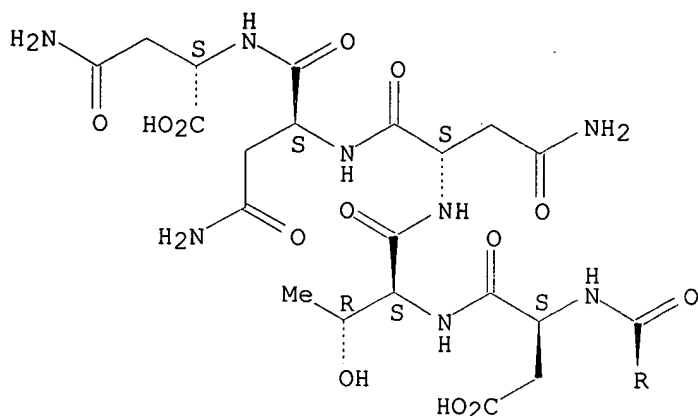
RN 132415-88-4 HCAPLUS

CN L-Asparagine, N2-[N2-[N2-[N-[N-[N2-[N-[N-(N-L-alanyl-L-tyrosyl)-L-tyrosyl]-L-threonyl]-L-lysyl]-L-.alpha.-aspartyl]-L-threonyl]-L-asparaginyl]-L-asparaginyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

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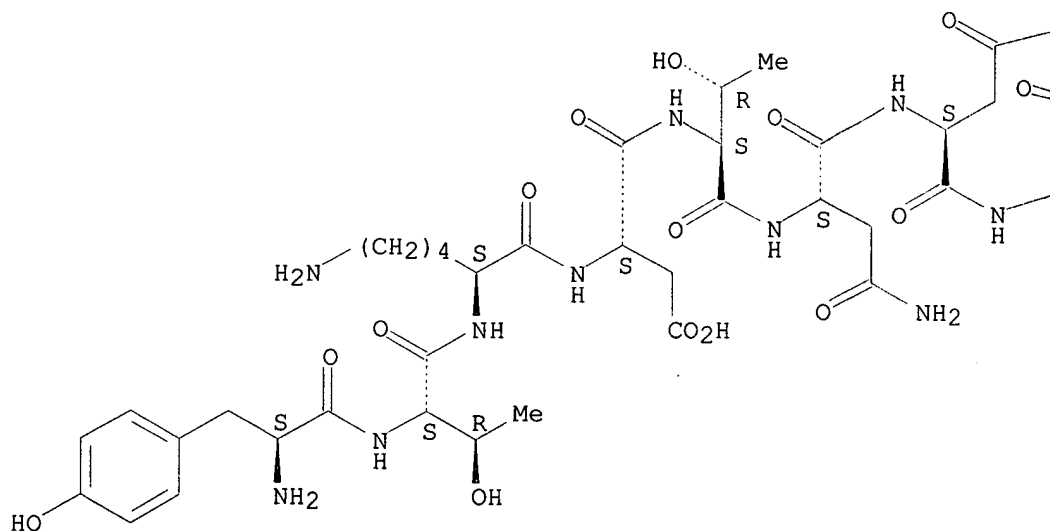




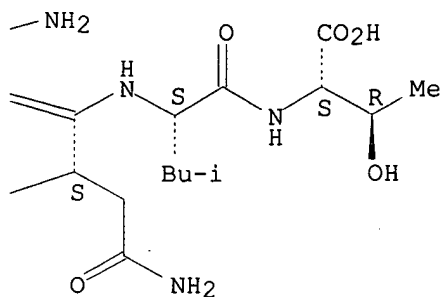
RN 132415-89-5 HCAPLUS

CN L-Threonine, N-[N-[N2-[N2-[N2-[N-[N-[N2-(N-L-tyrosyl-L-threonyl)-L-lysyl]-L-.alpha.-aspartyl]-L-threonyl]-L-asparaginy]-L-asparaginy]-L-asparaginy]-L-leucyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



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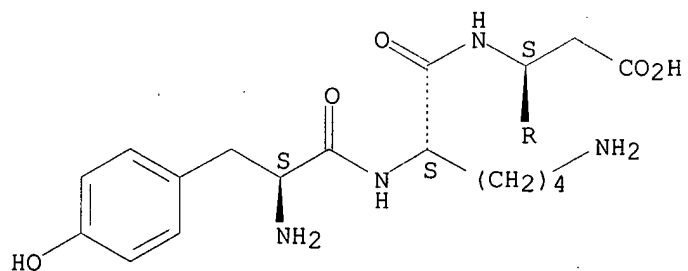


RN 132415-90-8 HCAPLUS

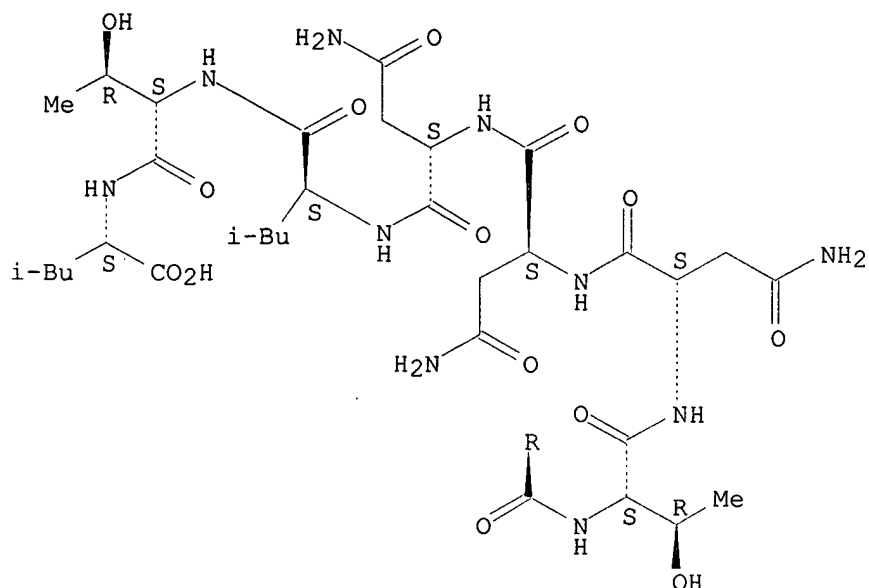
CN L-Leucine, N-[N-[N-[N2-[N2-[N2-[N-[N-(N2-L-tyrosyl-L-lysyl)-L-.alpha.-aspartyl]-L-threonyl]-L-asparaginy]-L-asparaginy]-L-asparaginy]-L-leucyl]-L-threonyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

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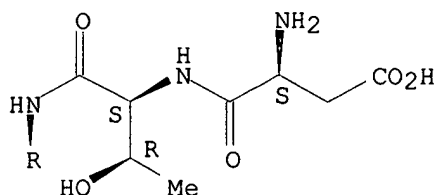
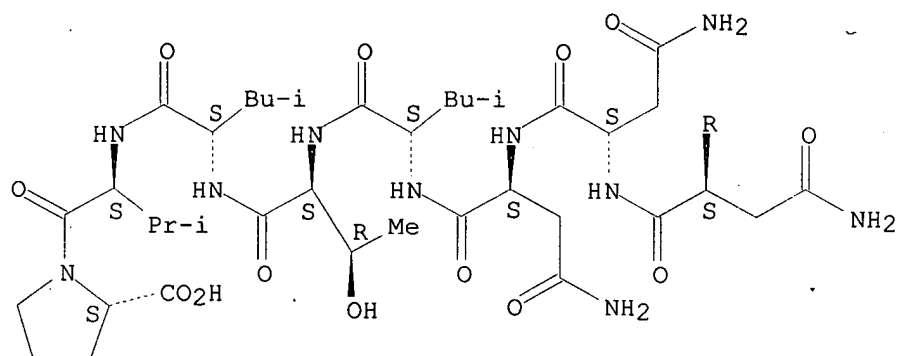




RN 132415-91-9 HCAPLUS

CN L-Proline, 1-[N-[N-[N-[N-[N2-[N2-[N2-(N-L-.alpha.-aspartyl-L-threonyl)-L-asparaginyl]-L-asparaginyl]-L-asparaginyl]-L-leucyl]-L-threonyl]-L-leucyl]-L-valyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



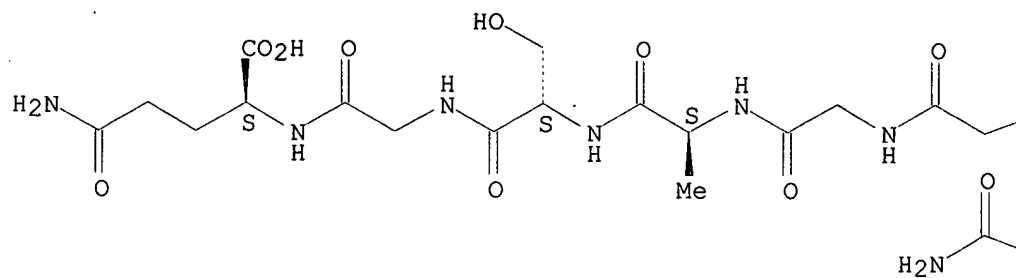
RN 132415-92-0 HCAPLUS

CN L-Glutamine, N2-[N-[N-[N-[N-[N-[N2-[N-(N-L-glutamyl-L-alanyl)-L-alanyl]-L-asparaginyl]glycyl]glycyl]-L-alanyl]-L-seryl]glycyl]- (9CI) (CA INDEX

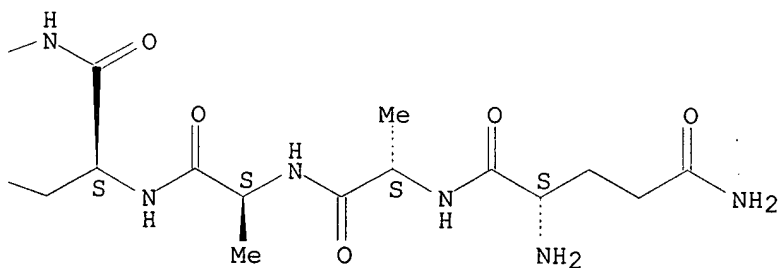
NAME )

Absolute stereochemistry.

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PAGE 1-B

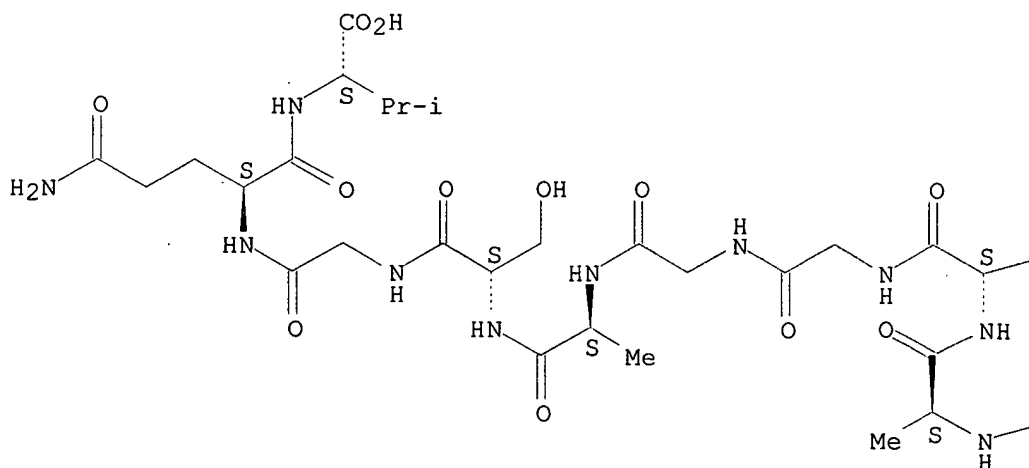


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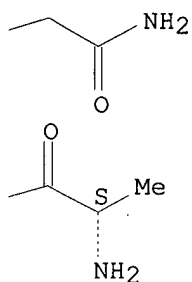
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(CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 1-B

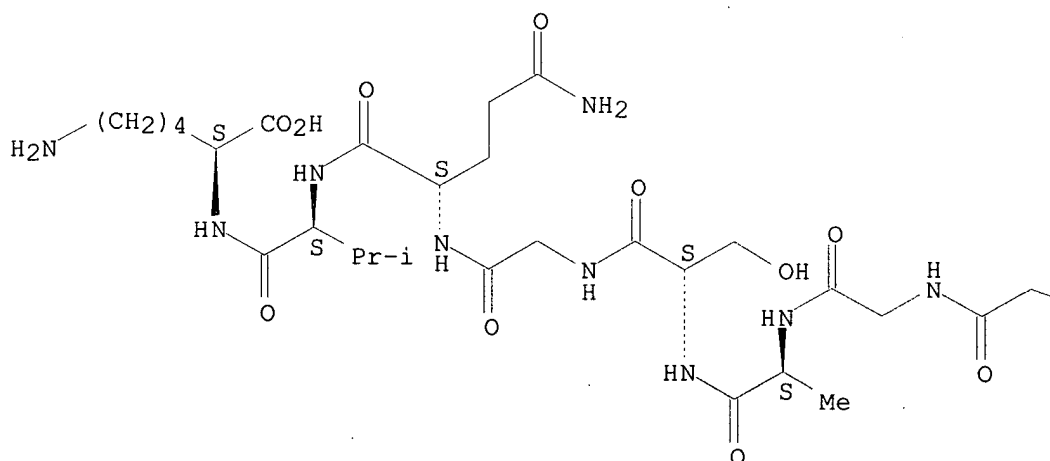


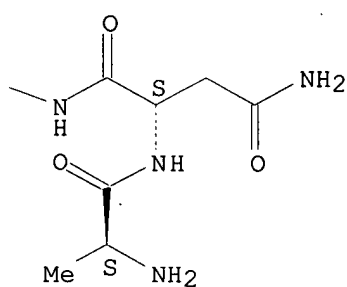
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CN L-Lysine, L-alanyl-L-asparaginyglycylglycyl-L-alanyl-L-serylglycyl-L-glutaminy-L-valyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

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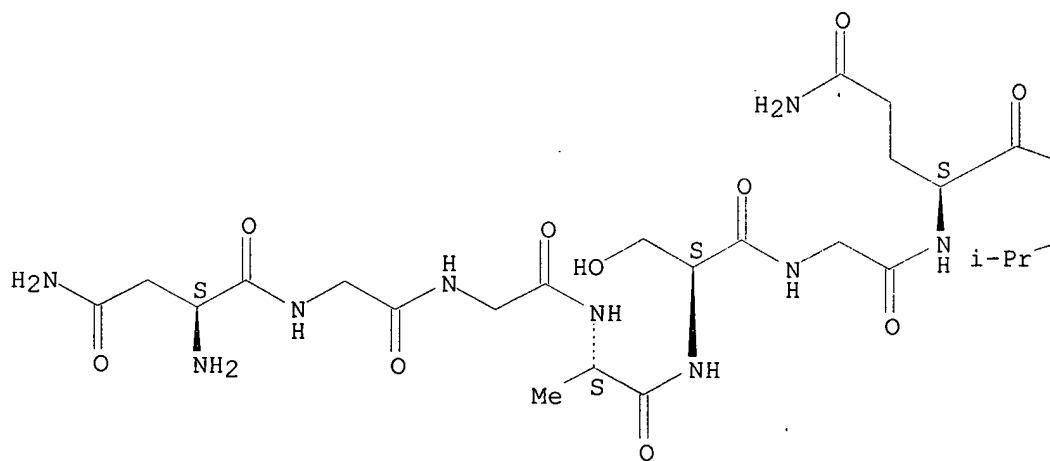




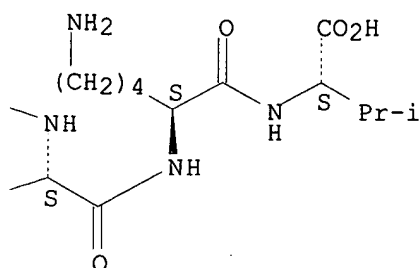
RN 132415-95-3 HCAPLUS

CN L-Valine, N-[N2-[N-[N2-[N-[N-[N-(N-L-asparaginylglycyl)glycyl]-L-alanyl]-L-seryl]glycyl]-L-glutaminy]-L-valyl]-L-lysyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



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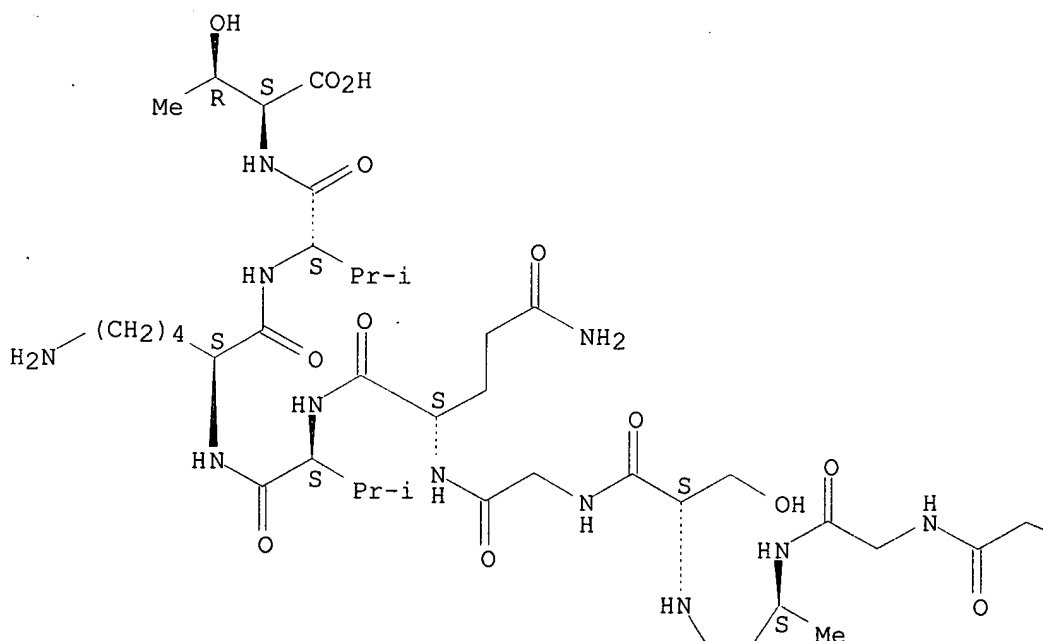


RN 132415-96-4 HCAPLUS

CN L-Threonine, N-[N-[N2-[N-[N2-[N-[N-[N-(N-glycylglycyl)-L-alanyl]-L-seryl]glycyl]-L-glutaminy]-L-valyl]-L-lysyl]-L-valyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

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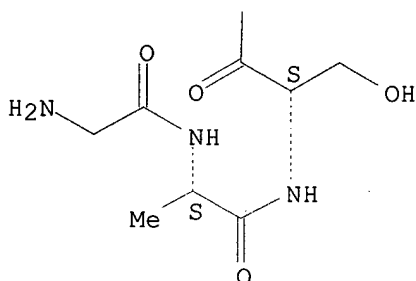
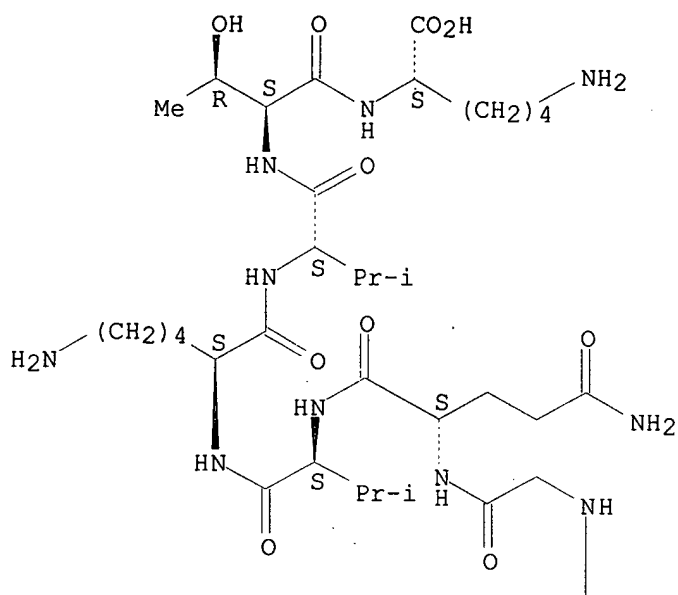




RN 132415-97-5 HCAPLUS

CN L-Lysine, N2-[N-[N-[N2-[N-[N2-[N-[N-(N-glycyl-L-alanyl)-L-seryl]glycyl]-L-glutaminy]-L-valyl]-L-lysyl]-L-valyl]-L-threonyl]- (9CI) (CA INDEX NAME)

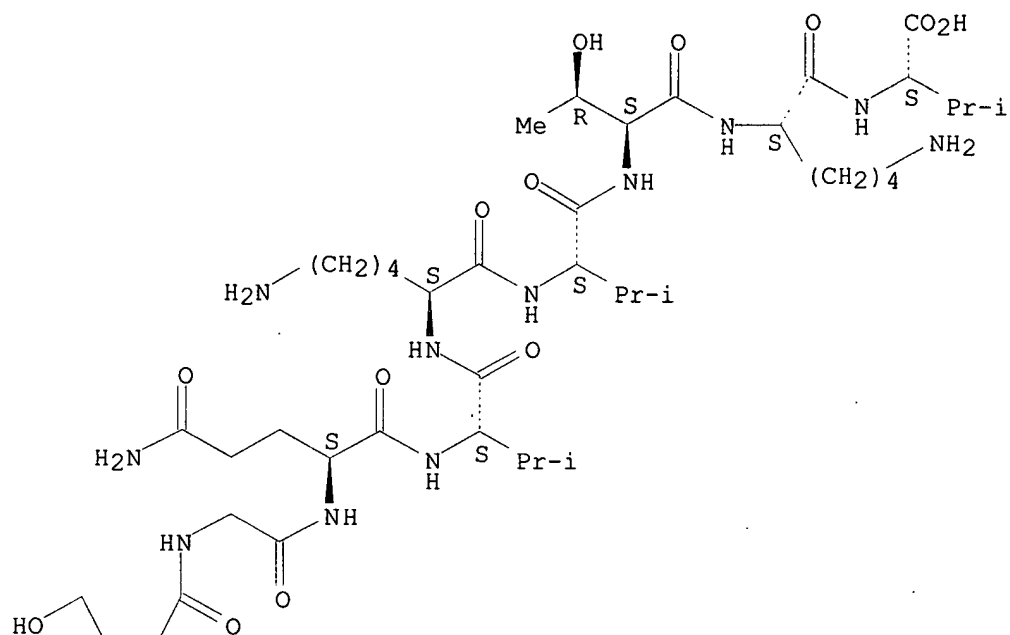
Absolute stereochemistry.



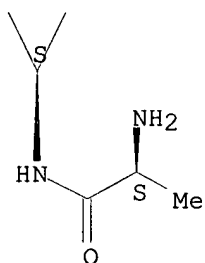
RN 132415-98-6 HCAPLUS  
 CN L-Valine, N-[N2-[N-[N-[N2-[N-[N2-[N-(N-L-alanyl-L-seryl)glycyl]-L-glutaminy]-L-valyl]-L-lysyl]-L-valyl]-L-threonyl]-L-lysyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

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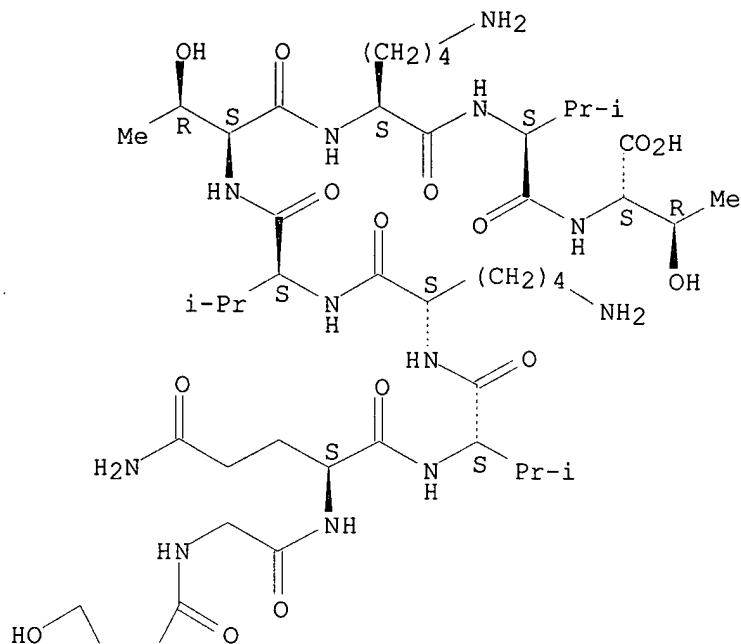
RN 132415-99-7 HCAPLUS

CN L-Threonine, N-[N-[N2-[N-[N-[N2-[N-[N2-(N-L-serylglycyl)-L-glutaminyl]-L-valyl]-L-lysyl]-L-valyl]-L-threonyl]-L-lysyl]-L-valyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



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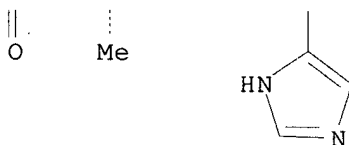
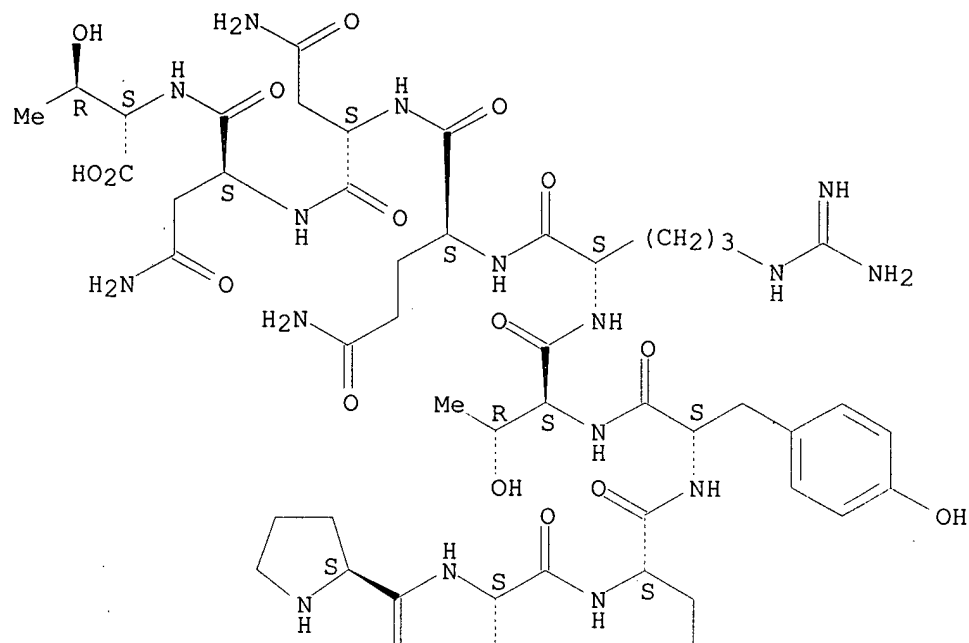


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RN 132416-00-3 HCAPLUS  
 CN L-Threonine, N-[N2-[N2-[N2-[N2-[N-[N-[N-(N-L-prolyl-L-alanyl)-L-histidyl]-L-tyrosyl]-L-threonyl]-L-arginyl]-L-glutamyl]-L-asparaginy]-L-asparaginy]- (9CI) (CA INDEX NAME)

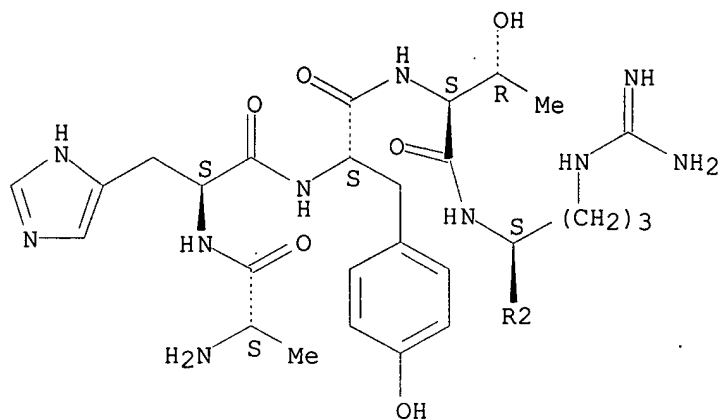
Absolute stereochemistry.



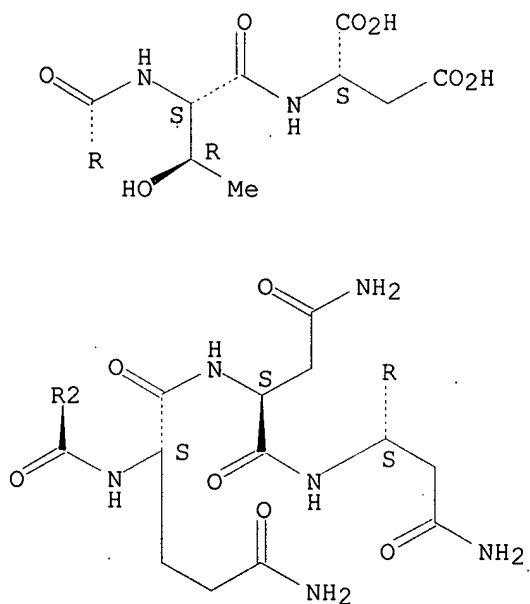
RN 132416-01-4 HCAPLUS  
 CN L-Aspartic acid, N-[N-[N<sub>2</sub>-[N<sub>2</sub>-[N<sub>2</sub>-[N<sub>2</sub>-[N-[N-(N-L-alanyl-L-histidyl)-L-tyrosyl]-L-threonyl]-L-arginyl]-L-glutaminy]-L-asparaginy]-L-asparaginy]-L-threonyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

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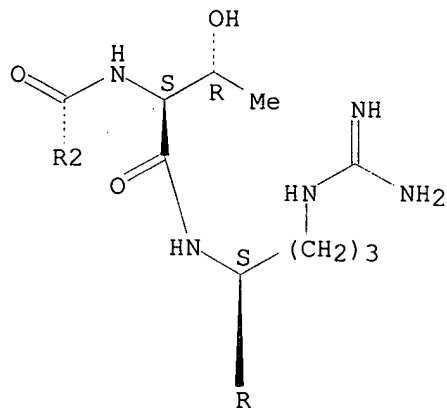
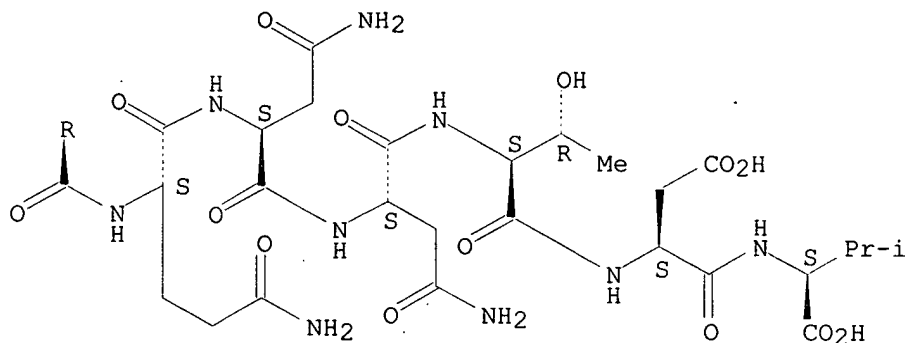
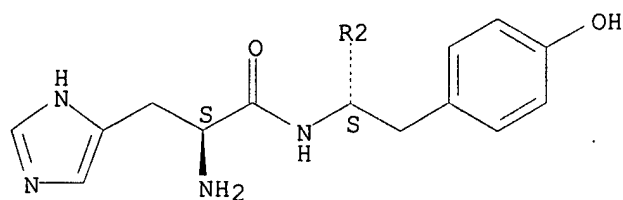
PAGE 2-A



RN 132416-02-5 HCAPLUS

CN L-Valine, N-[N-[N-[N2-[N2-[N2-[N2-[N-(N-L-histidyl-L-tyrosyl)-L-threonyl]-L-arginyl]-L-glutaminy]-L-asparaginy]-L-asparaginy]-L-threonyl]-L-.alpha.-aspartyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

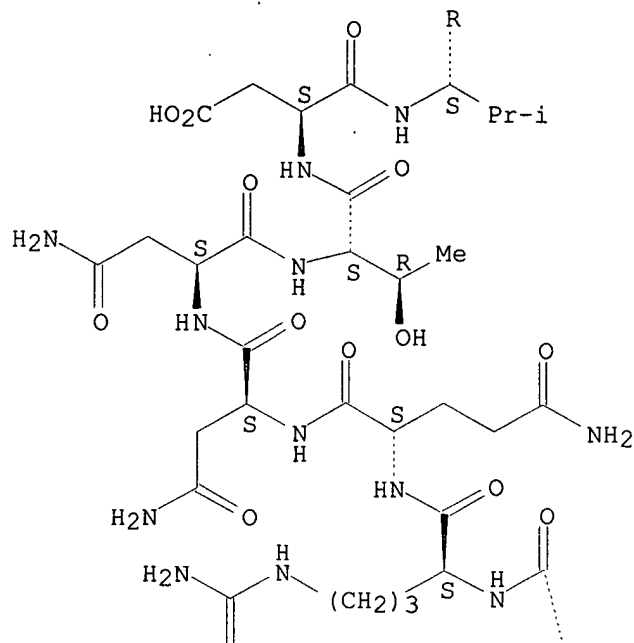


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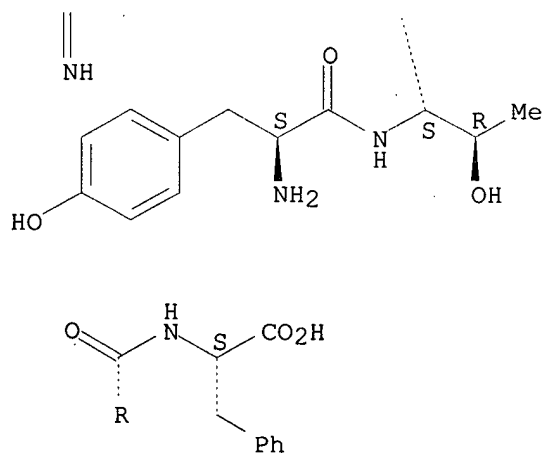
CN L-Phenylalanine, N-[N-[N-[N-[N2-[N2-[N2-[N2-(N-L-tyrosyl-L-threonyl)-L-arginyl]-L-glutaminy]-L-asparaginy]-L-asparaginy]-L-threonyl]-L-.alpha.-aspartyl]-L-valyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

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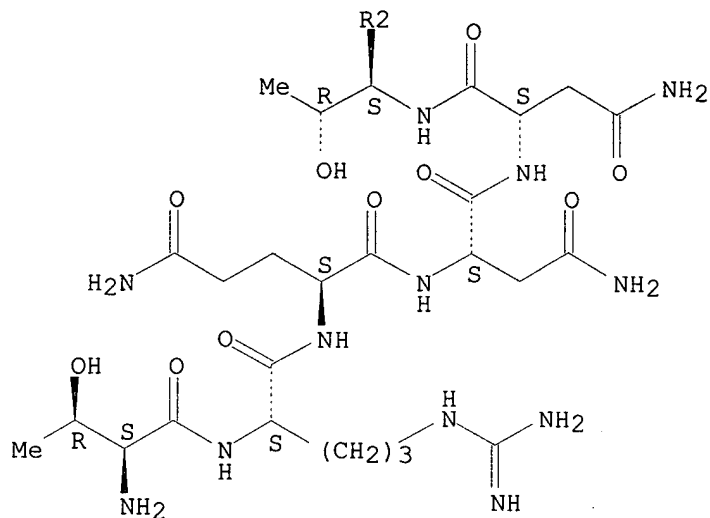


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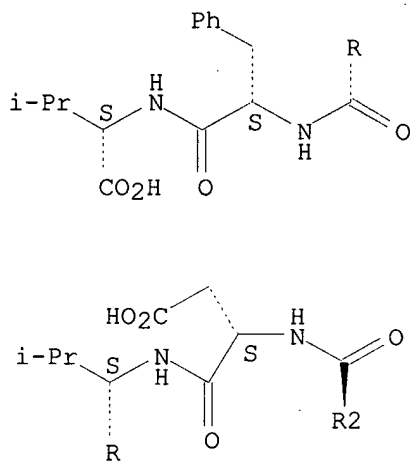
CN L-Valine, N-[N-[N-[N-[N-[N<sub>2</sub>-[N<sub>2</sub>-[N<sub>2</sub>-(N<sub>2</sub>-L-threonyl-L-arginyl)-L-glutaminy]]-L-asparaginy]]-L-asparaginy]]-L-threonyl]-L-.alpha.-aspartyl]-L-valyl]-L-phenylalanyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

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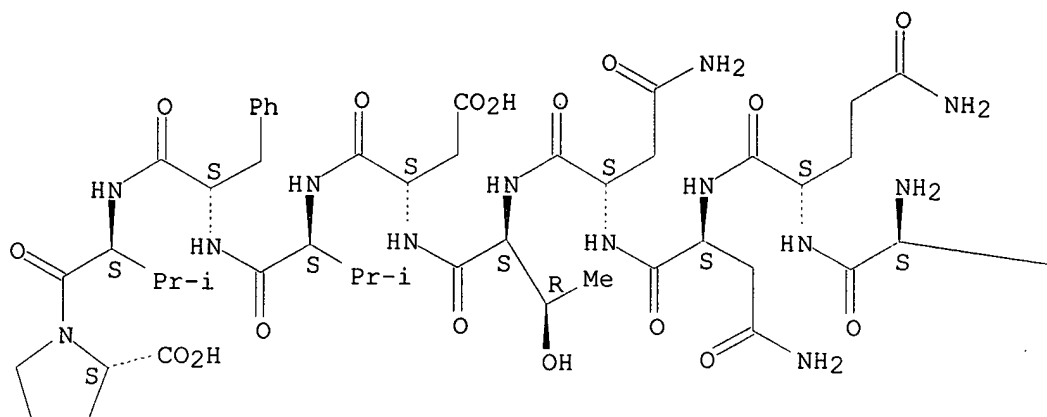
PAGE 2-A



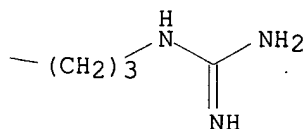
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 CN L-Proline, 1-[N-[N-[N-[N-[N-[N2-[N2-(N2-L-arginyl-L-glutaminy)]-L-asparaginy]]-L-asparaginy]]-L-threonyl]-L-.alpha.-aspartyl]-L-valyl]-L-phenylalanyl]-L-valyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

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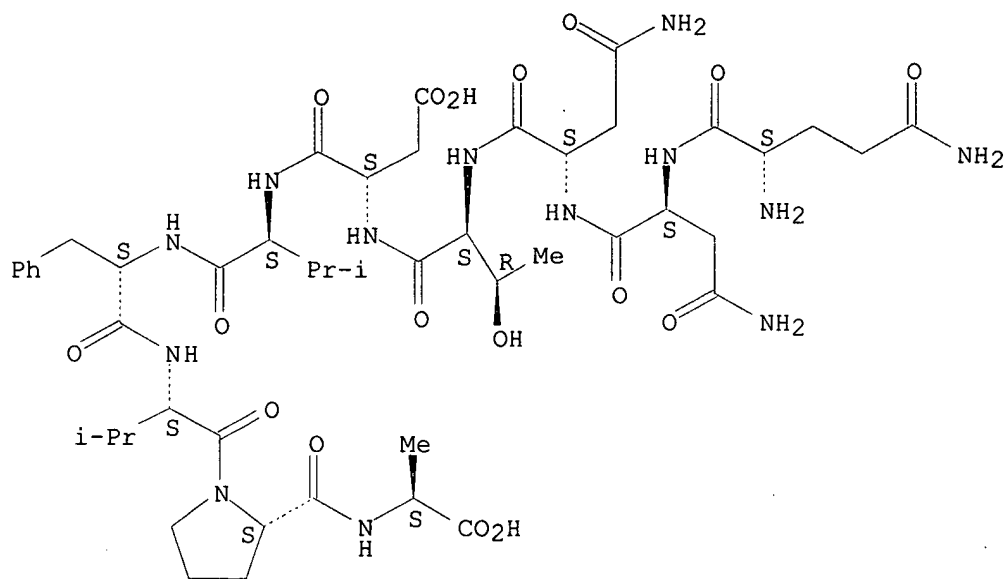
PAGE 1-B



RN 132416-06-9 HCAPLUS

CN L-Alanine, N-[1-[N-[N-[N-[N-[N2-(N2-L-glutaminyL-L-asparaginyL)-L-asparaginyL]-L-threonyL]-L-.alpha.-aspartyl]-L-valyl]-L-phenylalanyl]-L-valyl]-L-prolyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

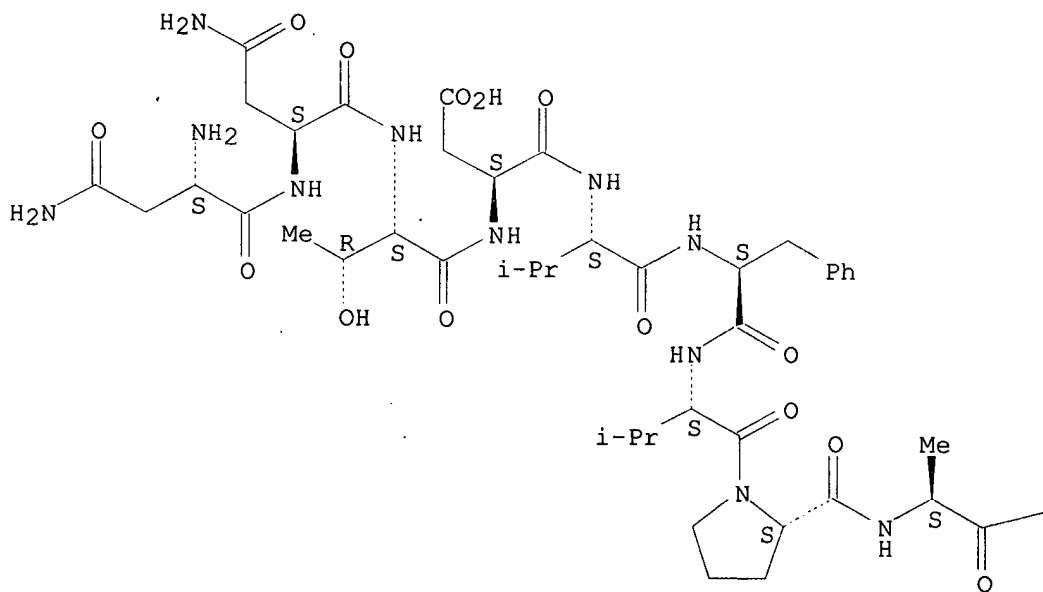


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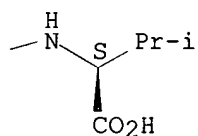
CN L-Valine, N-[N-[1-[N-[N-[N-[N-(N2-L-asparaginyl-L-asparaginyl)-L-threonyl]-L-.alpha.-aspartyl]-L-valyl]-L-phenylalanyl]-L-valyl]-L-prolyl]-L-alanyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

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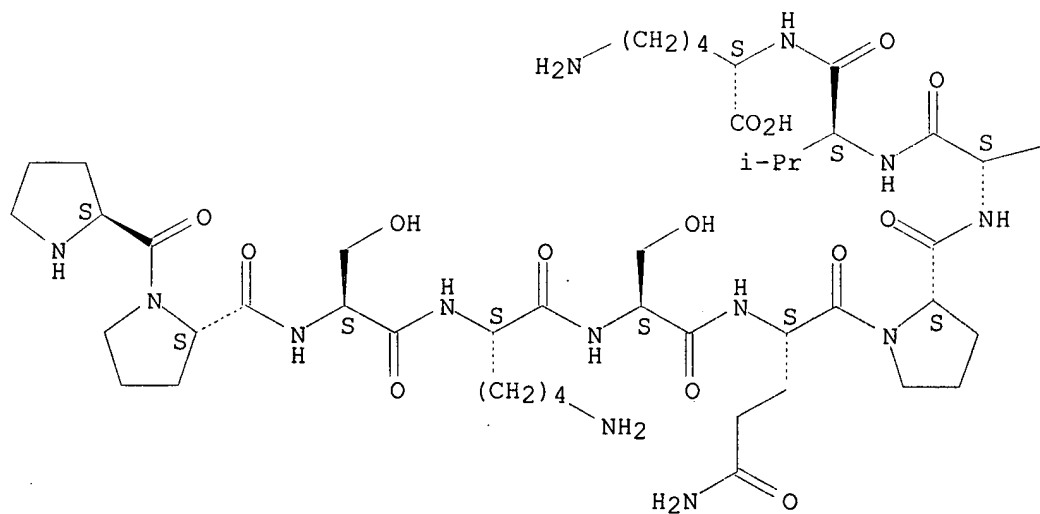




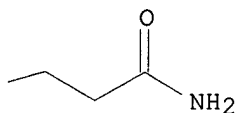
RN 132416-08-1 HCAPLUS

CN L-Lysine, N2-[N-[N2-[1-[N2-[N-[N2-[N-(1-L-prolyl-L-prolyl)-L-seryl]-L-lysyl]-L-seryl]-L-glutaminy]-L-prolyl]-L-glutaminy]-L-valyl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



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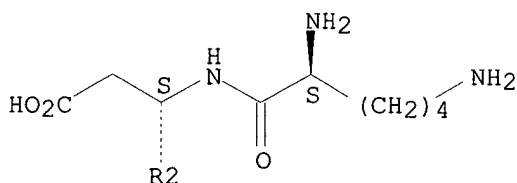


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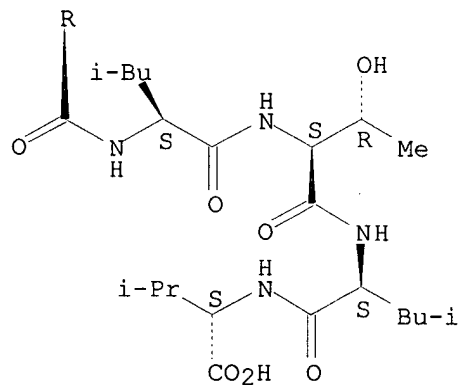
CN L-Valine, N-[N-[N-[N-[N2-[N2-[N2-[N-(N-L-lysyl-L-.alpha.-aspartyl)-L-threonyl]-L-asparaginy]-L-asparaginy]-L-asparaginy]-L-leucyl]-L-threonyl]-L-leucyl]- (9CI) (CA INDEX NAME)

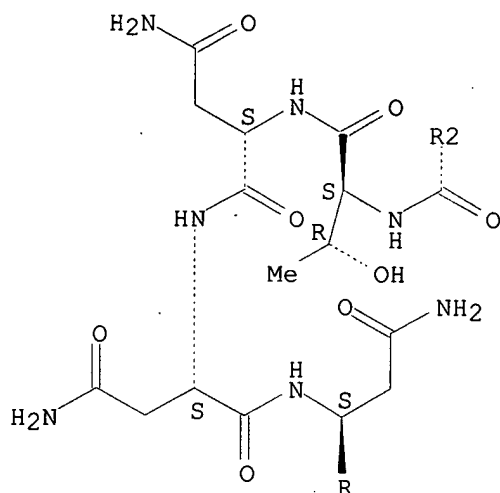
Absolute stereochemistry.

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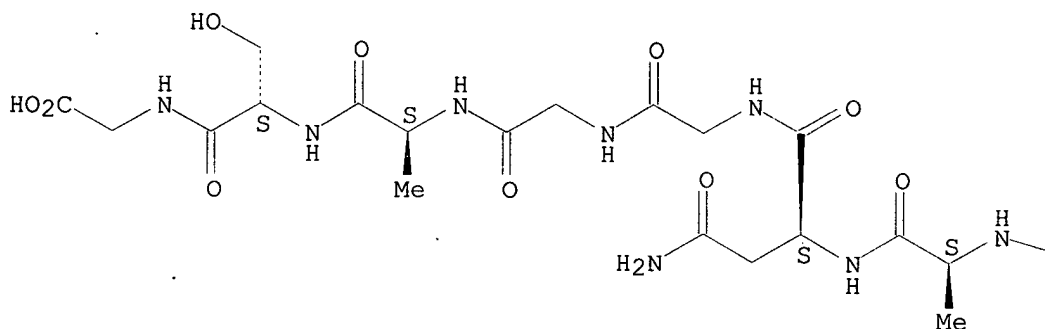


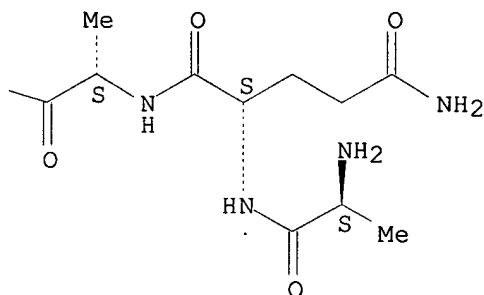


RN 132442-53-6 HCAPLUS

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Absolute stereochemistry.





IT 132892-29-6 132892-30-9 132892-31-0

132892-32-1 132892-33-2

RL: BIOL (Biological study)

(vaccine against meningococcal infection in relation to)

RN 132892-29-6 HCAPLUS

CN DNA, d(A-C-G-C-T-G-C-G-C-A-C-C-G-G-T-C-G-C-G-T-T-G-C-G-A-A-T-C-A-G-T-T-T-G-A-C-G-A-T-G-C-C-A-G-C-C-A-A-G-C-C-A-T-T-G-A-T-C-C-T-T-G-G) (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 132892-30-9 HCAPLUS

CN DNA, d(A-C-G-C-T-G-C-G-C-A-C-C-G-G-T-C-G-C-G-T-T-G-C-A-A-A-T-C-A-G-T-T-T-G-A-C-G-A-T-G-C-C-A-G-C-C-A-A-G-C-C-A-T-T-G-A-T-C-C-T-T-G-G) (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 132892-31-0 HCAPLUS

CN DNA, d(A-C-G-C-T-G-C-G-C-G-C-C-G-G-T-C-G-C-G-T-T-G-C-C-A-A-T-C-A-G-T-T-T-G-A-C-G-A-T-G-C-C-A-G-C-C-A-A-G-C-C-A-T-T-G-A-T-C-C-T-T-G-G) (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 132892-32-1 HCAPLUS

CN DNA, d(C-G-C-T-A-C-G-A-C-T-C-T-C-C-G-G-A-C-T-T-T-T-C-C-G-G-T-T-T-C-A-G-C-G-G-C-A-G-C-G-T-C-C-A-A-T-T-C-G-T-T-C-C-G-G-C-C) (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 132892-33-2 HCAPLUS

CN DNA, d(C-G-C-T-A-C-G-A-C-T-C-T-C-C-G-G-A-C-T-T-T-T-C-C-G-G-T-T-T-C-A-G-C-G-G-C-A-G-C-G-T-C-C-A-A-T-T-C-G-T-T-C-C-G-G-C-T) (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

=&gt; d ibib abs hitstr

L9 ANSWER 1 OF 1 HCAPLUS<sup>3</sup> COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2001:41310 HCAPLUS

DOCUMENT NUMBER: 135:165814

TITLE: **Gram-negative** bacteria induce proinflammatory cytokine production by monocytes in the absence of lipopolysaccharide (LPS)AUTHOR(S): Uronen, H.; Williams, A. J.; Dixon, G.; Andersen, S. R.; **Van Der Ley, P.**; Van Deuren, M.; Callard, R. E.; Klein, N.

CORPORATE SOURCE: Immunobiology Unit, Institute of Child Health, University College London, London, WC1N 1EH, UK

SOURCE: Clin. Exp. Immunol. (2000), 122(3), 312-315

CODEN: CEXIAL; ISSN: 0009-9104

PUBLISHER: Blackwell Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Tumor necrosis factor-alpha (TNF-.alpha.), IL-1.alpha. and IL-6 prodn. by human monocytes in response to a clin. strain of the **Gram-neg.** encapsulated bacteria *Neisseria meningitidis* and an isogenic lpxA- strain deficient in LPS was investigated. Wild-type *N. meningitidis* at concns. between 105 and 108 organisms/mL and purified LPS induced proinflammatory cytokine prodn. High levels of these cytokines were also produced in response to the lpxA- strain at 107 and 108 organisms/mL. The specific LPS antagonist bactericidal/permeability-increasing protein (rBPI21) inhibited cytokine prodn. induced by LPS and wild-type bacteria at 105 organisms/mL but not at higher concns., and not by LPS-deficient bacteria at any concn. These data show that proinflammatory cytokine prodn. by monocytes in response to *N. meningitidis* does not require the presence of LPS. Therapeutic strategies designed to block LPS alone may not therefore be sufficient for interrupting the inflammatory response in severe meningococcal disease.

REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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CC 15-5 (Immunochemistry)

ST *Neisseria* cytokine monocyte lipopolysaccharide sepsis

IT Proteins, specific or class

RL: BAC (Biological activity or effector, except adverse); BIOL (Biological study)

(BPI (bactericidal/permeability-increasing), antagonist; **gram-neg.** bacteria induced proinflammatory cytokine prodn. by monocytes in the absence of lipopolysaccharide in relation to)

IT Tumor necrosis factors

RL: BOC (Biological occurrence); BPR (Biological process); BIOL (Biological study); OCCU (Occurrence); PROC (Process)

(TNF-.alpha.; **gram-neg.** bacteria induced proinflammatory cytokine prodn. by monocytes in the absence of lipopolysaccharide)

IT Lipopolysaccharides

RL: BAC (Biological activity or effector, except adverse); BIOL (Biological study)

(bacterial; **gram-neg.** bacteria induced proinflammatory cytokine prodn. by monocytes in the absence of lipopolysaccharide)

- IT **Gram-negative** bacteria  
Monocyte.  
Neisseria meningitidis  
(**gram-neg.** bacteria induced proinflammatory  
cytokine prodn. by monocytes in the absence of lipopolysaccharide)
- IT Interleukin 1.alpha.  
Interleukin 6  
RL: BOC (Biological occurrence); BPR (Biological process); BIOL  
(Biological study); OCCU (Occurrence); PROC (Process)  
(**gram-neg.** bacteria induced proinflammatory  
cytokine prodn. by monocytes in the absence of lipopolysaccharide)
- IT Sepsis  
(meningococcal; **gram-neg.** bacteria induced  
proinflammatory cytokine prodn. by monocytes in the absence of  
lipopolysaccharide in relation to)